WELFARE, LAURA EVERHART, Ph.D. Counselor Cognitive Complexity: Instrument Development and Validation. (2007)
Directed by L. DiAnne Borders, Ph.D. 137 pp.

Because issues in counseling are often complex, it is difficult for counselors to accurately understand their clients' needs. A counselor's understanding is limited by his or her ability to recognize relevant client variables and comprehend their interactional impact on the client's overall needs (Blocher, 1983). This process is complicated, and requires advanced cognitive complexity.

Counselor cognitive complexity has been linked with multiple aspects of counselor effectiveness (e.g., Borders, 1989; Fong, Borders, Ethington, & Pitts, 1997; Holloway & Wolleat, 1980). In fact, researchers have found support for the assumption that cognitive complexity increases during supervised counseling practice (e.g., Duys & Hedstrom, 2000). To date, however, these results primarily have been based in general measures of a counselor's cognitive complexity, despite evidence that level of complexity is domain specific (Crockett, 1965). Crockett (1965) reported that an individual's level of cognitive complexity can vary from topic to topic. Because of the domain-specific nature of cognitive complexity, a counseling-specific measure of cognitions is needed before researchers can fully understand counselor cognitive development.

As such, the Counselor Cognitions Questionnaire was developed to fill the void in available instruments. It measures the complexity of counselors' cognitions about their clients. Development of the instrument and initial validation results will be described. Preliminary findings about the impact of general cognitive complexity on client-specific cognitive complexity and factors in counselor cognitive complexity will be explained.

COUNSELOR COGNITIVE COMPLEXITY: INSTRUMENT DEVELOPMENT AND VALIDATION

by

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A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro

2007

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ACKNOWLEDGEMENTS

I am honored by the great effort others have made to help me achieve this goal. Without the encouragement of my mentor and chair, Dr. DiAnne Borders, I would not have undertaken an instrument development project. Her confidence in my ability to be successful was a prerequisite and her guidance at every stage was indispensable. My committee members, Dr. Kelly Wester, Dr. Terry Ackerman, and Dr. Robert Aronson, provided insightful feedback that informed the initial development process and will continue to shape the instrument as I proceed with the validation process. I also am grateful for the unfailing support of my family, especially my patient husband, without whom this would not have been possible. I am moved by the many sacrifices he made in support of my goals. At this time of reflection, I celebrate him and everyone who helped me accomplish this great milestone.

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CHAPTER I

INTRODUCTION

Because issues in counseling often are complex, it is difficult for counselors to accurately understand their clients' needs. Effective counselors must be able to identify the multiple factors that influence a client's presenting problem and integrate these factors into a meaningful framework. This process is complicated, and requires advanced cognitive complexity. In addition, clients' issues vary in severity and chronicity, and their preferences and receptiveness to counseling vary, even during treatment. A client's unique combination of cognitive, emotional, behavioral, and spiritual characteristics determines her or his needs in counseling. There are endless possible combinations of these characteristics; how can counselors know all of them?

Counselors cannot know them all. Instead, a counselor's understanding of a client is limited by her or his ability to recognize relevant client variables and comprehend their combined impact on the client's overall needs. For example, if the counselor does not recognize the client's relationship insecurity, then the counselor cannot consider the impact of this characteristic on the client's generalized anxiety. In this example, the counselor's understanding of the client is incomplete and may lead to ineffective or inefficient treatment. The more complex their level of thinking is, the more client characteristics counselors can recognize and process, and thus the more accurate their understanding of the client can be (Blocher, 1983).

Such cognitive complexity is composed of two processes (Crockett, 1965). The number of client characteristics a counselor can recognize is the counselor's level of *differentiation*. Understanding how those characteristics fit together is the process of *integration*. Counselors who have high levels of cognitive complexity are able to recognize many client variables, allowing for a sophisticated understanding of client needs. Even intricate cases of inconsistencies, mutual influences, and paradoxes can be understood and addressed. Counselors who have low levels of cognitive complexity are more likely to see clients simplistically, focusing on concrete characteristics and using black/white decision-making. Thus, increasing the complexity of counseling students' cognitions about clients and the counseling process is a stated (e.g., developmental models) and implied goal of counselor education programs.

Indeed, counselor level of cognitive development has been linked with multiple aspects of counselor effectiveness (e.g., Borders, 1989; Fong, Borders, Ethington, & Pitts, 1997; Holloway & Wolleat, 1980; Ladany, Marotta, & Muse-Burke, 2001). Borders (1989) reported that counseling students with higher levels of cognitive complexity were better able to remain objective in the counseling session, and Fong et al. (1997) found that students with higher cognitive development used more complex and effective verbal skills and had more confidence in their work. Borders, Fong, and Neimeyer (1986) found that only students at higher levels of ego development described clients in interactional terms. Holloway and Wolleat (1980) reported that counselors with low levels of cognitive development formulated simplistic clinical hypotheses. Cognitive complexity also has been linked with case conceptualization skills (Ladany et al., 2001).

In sum, counselors at higher levels of cognitive development are better able to formulate a thorough, objective understanding of the client and communicate effectively and confidently in the counseling session.

These findings emphasize the vital need for facilitating cognitive development in counselor training and supervision. In fact, researchers have found support for the assumption that cognitive complexity increases during supervised counseling practice (e.g., Duys & Hedstrom, 2000; Granello, 2002). To date, however, these results primarily have been based in general measures of a counselor's cognitive complexity, despite evidence that level of complexity is content specific (Crockett, 1965). That is, an individual's level of cognitive complexity varies from topic to topic. For example, an individual may be able to think very complexly about flower gardening but only simplistically about adolescent mental health issues. A counseling-specific measure of cognitions is needed before researchers can fully understand counselor cognitive development. Such a measure would allow researchers to assess students' cognitions, devise interventions that increase their students' complex thinking, and investigate the effectiveness of these interventions. Counselor educators and supervisors then could use empirically supported interventions to maximize student opportunities for cognitive growth (Evidence-based practice in counselor education). Additional research into counselor cognitive development is necessary to achieve these goals.

Purpose of the Study

Although the importance of cognitive complexity seems clear, theoretically and empirically, no single, content-specific, psychometrically sound instrument exists to

measure counseling-specific cognitive complexity. There are well-established measures of overall cognitive developmental level, such as The Sentence Completion Test of Ego Development (SCT; Hy & Loevinger, 1998; Loevinger & Wessler, 1970), which captures counseling-relevant information about the respondent's system for perceiving self, others, and relationships. It does not, however, capture cognitions specific to clients, the counseling relationship, or the counseling process. This is a significant limitation, as cognitive complexity is context-specific and can vary widely by topic within the individual (Crockett, 1965). Using a general measure of cognitive complexity, then, may lead to faulty conclusions or underestimated effects.

A second well-established measure of cognitive complexity is the Role Category Questionnaire (RCQ; Crockett, 1965), as employed by Duys and Hedstrom (2000). Scorers of the RCQ tally the number of interpersonal characteristics a respondent uses to describe a liked peer and a disliked peer. The RCQ appears to be a good assessment of interpersonal construct *differentiation*, but the respondent's ability to integrate these constructs is not measured, despite the critical nature of both processes. In addition, it is unclear if one's complexity of cognitions about a peer is representative of one's complexity of cognitions about a client.

Certainly, cognitive-oriented instruments designed specifically for counseling research are available. These clinical assessments have limited psychometric evidence, however, or are focused on only one aspect of the content of counselor cognitions (e.g., treatment planning). For example, Falvey (Falvey, 1994; Falvey et al., 2005) created the Clinical Treatment Planning Simulation to gather information about case

conceptualization, diagnosis, and treatment planning. Respondents' written case conceptualizations are scored using an unwieldy scoring rubric developed by expert panelists. The respondent receives points for including pieces of information about the case that the experts deemed important (e.g., symptoms such as impulsivity or forgetfulness, diagnostic criteria such as impairment at school and home) and loses points for omitting important information (e.g., duration of the problem). Thus, the scores reflect counselor content knowledge of the symptomology and treatment practices for the single client issue presented and have no apparent relationship with the counselor's level of cognitive complexity.

Kurpius, Benjamin, and Morran (1985) used a thought-listing technique in their study of counseling cognitions. Respondents were given a total of 12 minutes to list thoughts stimulated by video clips of a client. Raters then awarded one point for each thought that represented one of four clinical hypothesis categories: 1) reflecting the client issues, 2) stating a factor of the client's issue, 3) relating a factor to the issue, and 4) differentiating or integrating problems. In addition, one point was given for thoughts that asked or answered questions about the client's issue, indicated future plans for counseling, revealed counselor coping skills, or supported the counselor's self-efficacy. A sum score was used as an indication of the respondent's ability to perform the conceptual tasks required of counselors. Herein lies the weakness of this instrument. For example, listing five client issues (e.g., drug abuser, unemployed, poor, homeless, and suicidal) would earn the participant a score of five. According to this scoring system, listing five much more complex thoughts also would earn the a score of five (e.g.,

dejected, lack of purpose in life, few meaningful relationships, low self-efficacy about work, lack of positive role models). In effect, the sum score does not truly reflect the differences in the cognitive abilities of the participants. Though this type of measure seems relevant to counseling performance, it does not appear to be a precise measure of the complexity of cognitions about clients or counseling.

Ladany, Marotta, and Muse-Burke (2001) studied the relationship between counselor complexity of case conceptualization and supervisory style preference. Participants were given a written intake of a client and asked to write at least three sentences describing what they believed to be the origins of the client's issue and an effective treatment plan for addressing the issue. Case conceptualization integrative complexity was measured using a social perception procedure developed by Suedfield, Tetlock, and Streufert (1992). Coders rated participant responses based on four levels of integrative complexity: 1 = low *differentiation* and *integration*, 2 = moderate/high *differentiation* and low *integration*, 3 = moderate/high *differentiation* and moderate *integration*, 4 = high *differentiation* and *integration*. The *differentiation* score reflected a sum of the number of reported factors in the origin of the client's issue (similar to Kurpius et al., 1985). Coders assigned an *integration* score based on participants' articulation of interrelated factors in the client issue or multiple options for the treatment plan. The wording chosen for the directions is a major threat to the validity of the measure. "Write at least three sentences" does not tell the participant that the goal is to provide a thorough case conceptualization and treatment plan, which is what the researchers contend that the participant response represents. In addition, it is unclear if

this method captures information about the counselors' level of cognitive complexity or merely their knowledge of causes and symptoms of the client's presenting problem, similar to Falvey's (1994) measure.

These measures capture information about the amount of knowledge participants have about counseling relevant topics and tasks (e.g., recognizing symptomology as outlined in the Diagnostic and Statistical Manual of Mental Disorders [DSM; American Psychiatric Association, 2005] and developing a treatment plan based in the client's presenting issues). Although a counselor's level of cognitive complexity underlies these tasks and limits the sophistication of the counselor's performance, measuring performance on the task itself does not necessarily represent cognitive complexity.

Statement of the Problem

The existing instruments, briefly described above, explicate some of the challenges in measuring counselor cognitive complexity. The instruments provide methods for collecting cognitions (e.g., sentence completion, thought listing, paragraph completion) or assessing counseling performance (e.g., diagnosis and treatment planning), but no single instrument has both a counseling-specific complexity measure and psychometric stability. The goal of this project, then, is to investigate the psychometrics of a new instrument, the Counselor Cognitions Questionnaire (CCQ; Welfare & Borders, 2006), as a reliable measure of counselor cognitive complexity specifically about clients that can easily be used by counselor educators, supervisors, and researchers. Each research question will gather evidence of validity of the CCQ. Additionally, the results will clarify aspects of counselor cognitive complexity.

Instrument development is a multifaceted, multiphase task. This study will contribute to the validation of the CCQ by exploring its empirical relationship with Loevinger's general measure of cognitive complexity, The Sentence Completion Test (Hy & Loevinger, 1998; Loevinger, 1976; Loevinger & Wessler, 1970). The SCT measures conceptual developmental level across 10 ego stages. It is the most counseling-relevant measure of general complexity because it captures relevant information about how respondents perceive themselves, others, and relationships. Since cognitive complexity level may vary across different topics, however, the general measure may not accurately represent cognitive complexity completely as it relates to counseling. Some individuals who have high overall levels of cognitive development may have low levels of cognitive complexity about clients. Two individuals with identical levels of general cognitive development may differ in counselor cognitive complexity, perhaps due to their training or experience level. On a group level, however, a direct relationship between the two is expected.

Thus, a second focus of the study is to investigate the effect of counseling experience on general cognitive complexity and client-specific cognitive complexity. In past research on counselors, general cognitive complexity has been found to change little over time, perhaps because of the broad levels of cognitive complexity represented by the scores (Hy & Loevinger, 1996). Nevertheless, complexity of counselor cognitions about clients is believed to increase during training and counseling experience.

In addition, this study will explore the empirical relationship between level of counselor cognitive complexity and self-perceived counselor effectiveness. The

complexity of counselor cognitions about a client with whom they have felt effective will be measured, as will complexity of cognitions about a client with whom they have felt less effective. Past literature supports the assumption that highly complex counselors demonstrate more skills of effective counselors (e.g., Borders, 1989; Fong, Borders, Ethington, & Pitts, 1997; Holloway & Wolleat, 1980; Ladany, Marotta, & Muse-Burke, 2001). It is expected that even within the individual, cognitions about clients with whom the counselor feels effective will be more complex than cognitions about clients with whom the counselor felt ineffective.

Finally, identifying counselor characteristics that influence cognitive complexity is a major step toward understanding counselor development. Some evidence suggests that age (Loevinger & Wessler, 1970) and experience (e.g., Duys & Hedstrom, 2000) impact cognitive complexity. Other researchers (e.g., Borders, 1989) have speculated that overall cognitive complexity has a ceiling effect on domain-specific cognitive complexity. A multiple regression analysis will yield empirical support for the impact of these factors on counselor cognitive complexity.

Research Questions

Accordingly, this study is designed to address the following research questions:

1. Are counselors' scores on the Counselor Cognitions Questionnaire significantly different across Sentence Completion Test (SCT) ego development levels?
2. Does duration of counseling experience predict scores on the measures of cognitive complexity (Counselor Cognitions Questionnaire and Sentence Completion Test)?

3. Do scores on the Counselor Cognitions Questionnaire vary significantly between clients with whom the counselor felt effective and less effective?
4. What factors (i.e., SCT score, age, graduate training, paraprofessional work experience, and counseling experience) influence scores on the Counselor Cognitions Questionnaire?

Need for the Study

A user-friendly, valid, reliable measure of counselor cognitive complexity is needed to facilitate research on counselor cognitive development. With such an instrument, researchers could identify the cognitive factors most critical to counselor effectiveness. Such knowledge also would inform counselor education and supervision curriculum. Interventions to facilitate cognitive development could be created, empirically tested, and integrated into curricular experiences in order to maximize counselor effectiveness and therefore client outcomes. Measures currently available are arduous to administer or score, which limits their usability, or focus on something other than complexity of counselor cognitions about clients (e.g., general cognitive development, content knowledge of diagnostic indicators, and complexity of cognitions about peers). With a quick and accurate assessment tool, counselor educators and supervisors could easily evaluate their students' progress. To achieve these goals, the measure must be simple to administer and straightforward in scoring even though cognitive processes are complex. The goals of this study are to further validate a new instrument, the Counselor Cognitions Questionnaire, as a measure of counselor cognitive complexity and explore factors that impact counselor cognitive development.

Definition of Terms

Cognitive complexity is the level of *differentiation* and *integration* in an individual's cognitive system (Crockett, 1965).

Counselor cognitions are counselors' thoughts and impressions of their clients and the counseling relationship.

Differentiation is the number of available constructs in an individual's cognitive system about a domain.

Integration refers to the ability to recognize relationships among cognitive constructs about a particular domain.

Construct refers to a cognitive template through which an individual understands or assigns meaning to her or his world. A construct also can be called a schema.

Cognitive development refers to an increase in an individual's level of cognitive complexity.

Ego developmental levels are part of a ten-stage system for grouping individuals according to the complexity of their cognitive, interpersonal, and moral perceptions of self and others (Hy & Loevinger, 1996).

Counseling Experience is the duration of time a counselor has provided professional counseling services.

Supervision is an individual or group educational process in which a supervisor attempts to facilitate the development of a supervisee by processing her or his experiences providing counseling services.

Supervisory Experience is the duration of time an individual has provided counseling supervision.

Brief Overview

This study is presented in five chapters. The first chapter has provided an introduction to cognitive complexity, cognitive development, and rationale of the CCQ. The purpose of the study, statement of the problem, and need for the study are outlined in this introduction. In addition, definitions of key terms are included. The second chapter contains a review of the literature as it relates to cognitive psychology, counselor cognitive development, and cognitive assessment. The third chapter includes the methodology to be used in the study, including participants, sampling method, instruments, and data analyses. A detailed scoring protocol for the CCQ is explained, and development and preliminary validation to date are presented. The fourth chapter presents the results of this research according to each research question. Finally, the fifth chapter summarizes the study and includes limitations and recommendations for future research in the area of counselor cognitive development.

CHAPTER II

LITERATURE REVIEW

Counselor Cognitive Complexity

Client issues in counseling are often complex. Effective counselors are able to identify and integrate multiple factors to reach an accurate understanding of complex client needs. That process of identifying and integrating pieces of information occurs in the counselor's cognitive system. Individuals with highly developed systems can understand varied and intricate experiences, while individuals with less developed cognitive systems understand experiences more simplistically. Thus, the complexity of a counselor's cognitive system is fundamental to effective practice.

Counselor educators and supervisors strive to prepare students to be effective counselors. Counselor cognitive development is a recognized goal of counselor preparation programs. Research into the effectiveness of counselor education practices informs curricular changes that improve counselor preparation. To this end, this study explores the measurement of counselor cognitive complexity. The following review includes the literature on general cognitive development, assessment methods that measure cognitive complexity, the development of professional expertise, empirical research regarding cognitive development, and qualitative and quantitative research on counselor cognitive development.

Several definitional distinctions must be considered in reading this review. Unless otherwise specified, *cognitive complexity* refers to the level of *differentiation* and *integration* in an individual's cognitive system (Crockett, 1965). *Differentiation* is the number of available constructs in an individual's cognitive system about a domain, such as a client. *Integration* refers to the ability to recognize relationships among cognitive constructs in a particular domain. A *construct* is a cognitive template through which an individual interprets or assigns meaning to her or his world. A construct also can be called a schema. *Cognitive development* refers to an increase in an individual's level of cognitive complexity.

The Bases of Cognitive Complexity: Theory and Measurement

Kelly, 1955

Personal Construct Theory (Kelly, 1955) is based on the assumption that individuals create conceptual templates (or constructs) that allow them to understand the things that they experience. Constructs are activated by stimuli and then used by the individual to understand the situation and respond appropriately. Kelly contended that individuals can refine the meaning they ascribe to a stimulus by learning from experiences. Therefore, an individual's system of cognitive constructs can become more complex over time. Each person's system is unique and based on her or his own experiences. Kelly defined a personal construct as an awareness of how two things are alike in a way that differentiates them from a third thing. In this definition, a construct is dichotomous and mutually exclusive. That is, something can be small or it can be large, but not both. In this example, the construct is small-large. When exposed to a stimulus

"paperclip," one's construct of smallness or largeness is activated (i.e., Is this item small or large?). The paperclip is classified as small. That classification is part of the individual's understanding of the stimulus "paperclip." Multiple constructs are activated for each stimulus, depending on the context of the stimulus.

The Construct Grid Method (CGM; Kelly, 1955) is the method Kelly developed to assess the complexity of an individual's construct system about a particular domain. The original method, called The Role Construct Repertory Test, has been modified to increase its versatility. Persons taking a traditional CGM are asked to consider in what important way two elements are alike and how those two elements are different from a third element. For example, Person A and Person B are both timid, while Person C is assertive. This assessment technique is very flexible in that it can be applied to any domain (e.g., vegetables, people, countries). The elements (i.e., Persons A, B, and C in the above example) can be designated by the assessor or the respondent (e.g., How are your two brothers Andy and David alike and different from your brother Ben?). However, Kelly recommended asking the respondent to generate the construct (i.e., timid - assertive in the above example). In a single construct grid the respondent considers six or more elements and many constructs, depending on the situation. The "grid" is developed with the elements and constructs. There are many methods for creating and scoring the grid. A common method is using a rating scale grid (Beail, 1985). In this method each element (e.g., client A, client B, and client C, etc.) is given a rating on each construct (e.g., 1 = very timid, 2 = somewhat timid, 3 = somewhat assertive, 4 = very assertive).

Table 1
Sample Grid

	Client A	Client B	Client C	Client D	Client E	Client F	Client G	Client H	
Timid	1	1	4	2	4	3	1	2	Assertive
Reliable	1	2	2	4	2	2	3	1	Unreliable

Analysis of the ratings is complex. Graphs, correlations, factor analyses, and cluster analyses have been used to analyze grid scores (Landfield & Epting, 1987). All analyses measure the similarities and differences among the elements and constructs.

Because of the adaptability and its relevance to understanding how people understand other people, the grid technique has been used in counseling research. Borders, Fong, and Neimeyer (1986) used the CGM to assess counselor cognitions about clients. Respondents listed eight clients who were then grouped into eight combinations of three clients. The respondent was presented with each grouping of three and asked to describe how two of the clients were similar and how they were different from the third client (e.g., these two clients are “straightforward” while the third is “manipulative”). However, due to the complexity and variety of the scoring procedures, the CGM has not been used often. In addition, the measure does not capture the respondent’s complete cognitions about an individual or client. The constructs chosen may not represent the full breadth or depth of the respondent’s understanding.

Bieri, 1955

Bieri (1955), a student of Kelly, defined cognitive complexity as the capacity to interpret social behavior in a multidimensional way. He believed that individuals use their perceptions to predict others' behaviors. Cognitive systems that are more complex allow more highly differentiated impressions of people, while simple cognitive systems provide poorer *differentiation*. Simple cognitive systems can develop into more complex cognitive systems with experience. Bieri measured cognitive complexity using Kelly's (1955) construct grid, but, rather than analyzing the response patterns or differences among the constructs on the grid, he simply counted the number of constructs used by the respondent. Bieri contended that the number of constructs in a sample is representative of the total number of constructs in the respondent's cognitive system. Using the CGM to obtain a count of constructs clarified the theoretical definition of cognitive complexity. Operationally defined by this assessment technique, cognitive complexity is the number of constructs in the cognitive system. One limitation of this method is that the sample of constructs on the grid is dependent on the elements in question. That is, if the grid is used to explore family relationships, then the elements are family members and the constructs are about the family members. Such a narrow sample may not be representative of overall cognitive complexity, nor complexity of elements in other domains.

Crockett, 1965

Walter Crockett (1965), also a student of Kelly, expanded on his mentor's theories in his chapter, "Cognitive Complexity and Impression Formation." Crockett

contended that an individual's impression of another person is a function of the behavior and appearance of the perceived person; the relationship between the perceiver and the perceived; and the cognitions, beliefs, motives, intentions, personality, and psychological state of the perceiver. The perceiver only directly observes a few characteristics of the perceived, but makes extended inferences about many other characteristics. The inferences are made in the perceiver's cognitive system. Crockett focused on the complexity of the cognitive system as it relates to the process of forming impressions of others. Like Kelly and Bieri, he too believed that a person's cognitive system becomes more complex over time as he or she encounters new experiences. Crockett clarified, however, that if an individual does not experience new stimuli in a particular domain, her or his cognitive system in that domain will not become more complex. Therefore, the complexity in one domain does not represent the complexity in another domain or overall complexity. The domain-specific nature of cognitive systems is quite relevant in understanding and conducting research on cognitive complexity. For example, the current study is targeting the complexity of cognitions that counselors have about their clients. Per Crockett's dictum, measuring the complexity of cognitions about anything other than clients would not be a valid measure of a counselor's complexity of thinking about a client.

Crockett (1965) also provided a specific definition of cognitive complexity: A complex cognitive system contains a large number of constructs that are integrated hierarchically. He defined two aspects of cognitive complexity: the number of constructs in the system is the degree of cognitive *differentiation*, while the complexity of the

relationships and connections among the constructs is referred to as the degree of *integration*. Crockett explored ways to measure *differentiation* and *integration*. First, he explained that an exhaustive measure of *differentiation* and *integration* is not possible. Instead, researchers must use a targeted sample of the cognitive system and assume that the sample is representative of the whole. Crockett developed a measure that sampled a broader range of constructs than the Kelly (1955) or Bieri (1955) measures. The Role Category Questionnaire (RCQ; Crockett, 1965) captures respondent descriptions of eight different individuals in varying roles. The roles include, for example, an older, liked man and a same age, disliked female. The total number of unique constructs used to describe the eight people is the respondent's interpersonal construct *differentiation* score. This measure of construct *differentiation* reportedly is more valid than past measures since it includes impressions of different types of people (Crockett, 1965).

Scoring of the RCQ requires identification of the individual constructs listed in the response. Individual constructs are defined as any characteristic, quality, trait, motivation, belief, habit, mannerism, or behavior (Crockett, 1965). A point is given for each unique construct listed in the description of each peer. If, within the response, two phrases seem to mention similar constructs, the respondent is given the benefit of the doubt and multiple points are awarded. This is the case except in the case of adjectives describing a noun, in which case the two words represent one construct and are awarded one point. For example, "clever and mischievous" would earn two points, while "insensitive jerk" would earn one. Finally, general statements about humanity are not

scored. That is, “we all have our faults” or “I wish people were more like him” would not earn points.

Coders are trained using the manual created by the authors (Crockett et al., 1974). The recommended process includes reading the coding rules, practicing by coding sample responses, discussing the coding rules used to rate each response, and seeking guidance from an experienced coder. As a final stage, a novice and expert coder should rate the same responses and inter-rater reliability should be assessed. Inter-rater reliability in studies using this instrument frequently exceed 0.90, demonstrating sufficient reliability for use in research. Crockett reported a 4-month test-retest reliability of 0.95 for the eight role version of this instrument (Crockett, 1965). A more recent version of the RCQ includes only two roles (liked and disliked peer). It earned 4-week test-retest reliability scores of 0.84 and 0.86 (O’Keefe, Sheppard, & Streeter, 1982). These scores represent adequate test-retest reliability for group level data with adult participants. Use of the RCQ with children or adolescents may show lower test-retest correlations due to the natural development of respondents in that age group.

Evidence of validity is also available for the RCQ. Researchers (e.g., Beatty & Payne, 1984) found RCQ scores to be positively correlated with adults’ performance on a measure of social perspective taking called the Social Perspectives Task (Hale & Delia, 1976). Angell (2000) found scores on the RCQ and the Paragraph Completion Task had a positive correlation ($\underline{r} = .37$, $\underline{p} < .05$). This finding also supports the hypothesis of this study that general cognitive complexity is related to, but not necessarily synonymous with, complexity of cognitions about a specific domain. Angell also found the RCQ and

a measure of loquacity called the Talkaholic Scale (McCroskey & Richmond, 1993) showed no significant correlation (r = -.09, non-significant). The RCQ also has been shown to have no significant relationship to writing speed (Burleson et al., 1981).

In sum, the RCQ has been demonstrated to have sufficient evidence of validity for use as a measure of interpersonal cognitive complexity in adults. It is quick and easy to administer and relatively easy to score. It has been used in communication, psychology, and counseling research. As previously noted, it seems an appropriate measure of interpersonal construct *differentiation*, but not of general cognitive complexity or of interpersonal construct *integration*.

Zajonc, 1960

Zajonc (1960) developed one of the first methods for assessing cognitive *integration*. His method was designed to determine the organization of an individual's impression of another person. Respondents write all of the constructs that are included in her or his impression of a person. The constructs are written on separate slips of paper and sorted by the respondent into groups based on similarities. Zajonc obtained a "degree of complexity" score by tallying the total number of groups (Cacioppo & Petty, 1981; Zajonc, 1960). He then asked participants to consider a pair of constructs and report, if one construct was changed, would another construct change as well. If so, Zajonc considered the relationship between the two constructs a dependency. The ratio of the number of reported dependencies over the number of possible construct pairs he called cognitive unity. If changing one construct results in change in many dependent constructs, it is considered a central construct. Zajonc's method includes tasks that allow

the assessor to directly observe the relationships among the respondent's cognitive constructs. For the purposes of this study, Zajonc's method of asking the respondent to group the constructs offers a good option for assessing cognitive *integration*. His method of identifying dependencies among constructs is less relevant since the goal is to assess complexity, not centrality of key constructs.

Harvey, Hunt, and Schroeder, 1961

Harvey, Hunt, and Schroeder (1961) also described cognitive complexity, though they named it a "conceptual system" rather than a cognitive system. Harvey et al. described a "concept" as the part of the cognitive system that links a stimulus with the individual's response. The nature of these concepts impacts how the individual understands and interacts with the world. They described the development of the conceptual system as becoming more complex and relativistic. Their assessment used to measure general conceptual level is called the Conceptual Systems Test (CST; Harvey & Hoffmeister, 1967). The CST includes 67 statements of beliefs that represent six factors: Divine Fate Control, Need for Structure-Order, Need to Help People, Need for People, Interpersonal Aggression, and Anomie. Respondents indicate the degree to which they agree with the belief. Respondents are then classified into one of four hierarchical systems based on their reported beliefs. System 1 is called unilateral dependence and is marked by concrete, simplistic, rule-bound, categorical thinking. System 2 is called negative independence and is still categorical thinking but also oppositional to external authority. System 3 thinking, called conditional dependence, is marked by more cognitive complexity and empathetic relationships. Finally, System 4 thinkers, called

informational interdependence, are the most complex. They possess the capacity for abstract thought and multiple perspective-taking. Harvey et al. described in detail the types of thoughts and behaviors that can be expected from individuals at each conceptual level. The limitation of this measure, as with other general measures, is that it does not capture conceptual level specific to the functions of a counselor. Certainly, general conceptual level is relevant to performance as a counselor. In fact, future research could reveal that general conceptual level operates as a ceiling for domain-specific conceptual level. In any case, a more tailored measure of the conceptual tasks of a counselor would provide more useful results.

The Paragraph Completion Method

The Paragraph Completion Method (PCM; Hunt, Butler, Noy, & Roser, 1977) is a semi-projective measure of cognitive complexity based in the Harvey et al. (1961) theory of conceptual level described above. Hunt et al. (1977) believed that a measure of cognitive complexity should have respondent generated content. The PCM has six to nine sentence stems such as, "When I am criticized…" and "When I am in doubt…" The items are designed to elicit responses that reveal the respondent's decision making processes, relationship with authority, and interpersonal maturity. Some researchers who have used the PCM specify a response length (e.g., at least three sentences) or a time limit (e.g., three minutes per item stem). Others reduce the number of items stems to prevent respondent fatigue. The scoring rules are based in the descriptions of conceptual system levels above. Raters study characteristics of each stage and examples of responses that represent each stage. The responses are scored 0 for System 1, 1 System 2,

2 for System 3, or 3 for System 4 per the conceptual level evident in the response. Scores of .5, 1.5, 2.5, and 3.5 are allowable if the response indicates conceptual level in transition from one level to the next. The three highest scores are averaged. This average is the conceptual level assigned to the respondent. The PCM has good evidence of reliability and validity as a measure of overall conceptual level and has been used frequently in research on cognitive complexity.

Conceptual/Integrative Complexity Method

A second method for assessing cognitive complexity based on writing samples is the conceptual/integrative complexity method (CICM; Suedfeld, Tetlock, & Streufert, 1992). This method is based in Kelly's (1955) personal construct theory and is concerned with the structure of the writing samples, not the content. The focus of CICM is complexity of information processing and decision making. Individuals with higher levels of cognitive complexity are able to take multiple perspectives, perceive different dimensions within the stimulus, and consider alternatives and weigh trade offs in decision making. Trained raters score the writing samples for the presence or absence of these marks of complex thinking. A score of one through seven is assigned. The writing samples can come from archival data (e.g., past political speeches) or material written for the purpose of assessment (e.g., a case conceptualization). A written scorer training manual and practice exercises are available. Suedfield et al. suggested that a minimum inter-rater reliability of .80 should be achieved. The scoring protocol is well defined and has evidence of validity as a measure of overall cognitive complexity. One limitation, however, is that the writer of the passage is not necessarily aware that the passage will be

evaluated for complexity of the thought processes. Using the authors' example of political speeches, the writer of a political speech chooses the content and structure of a speech for purposes other than showing a complex thought process (e.g., to describe the issue in terms the lay audience can understand). Similarly, a brief written case conceptualization is unlikely to include the writer's ponderings about all factors in the client issue or trade offs between alternative treatment modalities. For this method to be used appropriately as a measure of complexity of counselor cognitions about clients, respondents would have to be informed that the completeness of their writings is paramount to scoring.

The Learning Environment Preferences Scale

The Learning Environment Preferences scale (LEP, Moore 1989) measures student level of cognitive development in a less direct way. It captures respondent preferences for types of learning environments. From those preferences, the respondent's cognitive complexity purportedly can be deduced. The LEP consists of 65 statements that relate to epistemological approaches to learning, grouped into five domains: view of course content, role of the instructor, role of the student and peers in the classroom, the classroom atmosphere, and role of evaluation. Respondents indicate which three of the thirteen statements in each domain are of the highest importance. A trained rater considers the characteristics of the respondent's preferences and assigns a numerical cognitive complexity score which corresponds to the continuum of cognitive development delineated by Perry (1970). The levels in Perry's continuum are dualistic thinking (dichotomous black and white structure), multiplistic thinking (uncertain

structure, search for information), relativistic thinking (knowledge is contextual), and committed relativism (moral and ethical beliefs). Moore (1989) reported internal consistency scores of .72 to .84 for each position across the five domains. The LEP (Moore, 1989) is a distinctly different way to measure overall cognitive complexity. Like many of the other measures described herein, it measures general cognitive complexity, which is not necessarily valid as an indication of complexity of cognitions in a specific domain.

Loevinger

Loevinger (1976) described cognitive development in a broader context in her theory of ego development. She cited the works of Adler (1956), Sullivan (1953), and Kohlberg (1964) as theoretical underpinnings of her work (Loevinger & Wessler, 1970). Loevinger described ego development as increasing *differentiation* and *integration* of one's perception of the world. Ego development is a master trait that has major significance in the person's functioning (Hy & Loevinger, 1996). Individuals at more advanced ego developmental levels are less focused on self and better able to understand others (Loevinger & Wessler, 1970). The following table includes the stages of ego development included in the theory and a brief description of each. The descriptions operationalize characteristics of individuals at each level.

Table 2

Stages of Ego Development

Ego Level Name	Code	Characteristics
Impulsive	E2	Poor impulse control, egocentric, dependent, focused on bodily feelings
Self-Protective	E3	Focus on short-term gratification, opportunistic, manipulative, wary
Conformist	E4	Respect for rules, loyal, black and white thinking, strong desire for acceptance
Self-Aware	E5	Exceptions to rules allowable, self-aware, emphasis on feelings
Conscientious	E6	Self-evaluated standards, self-critical, responsible
Individualistic	E7	Tolerant of differences, formed identity
Autonomous	E8	Tolerant of ambiguity, recognizes need for autonomy
Integrated	E9	Cherishes individuality, fully actualized

Note: Adapted from Hy & Loevinger, 1996

Loevinger also developed a measure of ego developmental level, The Washington University Sentence Completion Test (SCT; Hy & Loevinger, 1996; Loevinger, 1998, 1976; Loevinger & Wessler, 1970). The most recent version of the SCT (Hy & Loevinger, 1996; Loevinger, 1998) includes 36 sentence stems (e.g., "What gets me into trouble is…," "A good father…," "Rules are…"). Respondents are asked to complete each sentence and trained scorers rate each response using a specific scoring method. An overall ego stage level is assigned to the respondent based on review of all 36 ratings. The eight ego developmental stages are: E2: Impulsive, E3: Self-Protective, E4: Conformist, E5: Self-Aware, E6: Conscientious, E7: Individualistic, E8: Autonomous, and E9: Integrated (see Table 2 above).

The SCT has strong evidence of psychometric stability. Trained raters have reported inter-rater reliabilities of .94 (e.g., n = 229, Novy, 1993). Internal consistency reliability, measured using coefficient alpha, is .84, .81, and .90 for the first half, second half, and full-length 36-item forms, respectively (Loevinger, 1998).

The comprehensiveness of Loevinger's conception of ego development makes it especially relevant to counselor education. Advanced cognitive as well as moral, individual, and social development are desirable qualities of a counselor. When the SCT (Hy & Loevinger, 1996; Loevinger, 1976; Loevinger & Wessler, 1970) has been used in research on counseling students, three ego levels are typically represented (e.g., Borders, 1989): E5: Self-Aware, E6: Conscientious, and E7: Individualistic. At the E5: Self-Aware level, individuals realize that not everyone can be categorized perfectly into types; rather some "exceptions to the rule" are considered. An individual at this stage is able to recognize differences between him or herself and a group, and may be self-conscious. Examples of item responses include "A good mother—is able to be flexible" and "I am—uncomfortable sometimes." At the E6: Conscientious stage individuals have developed and follow their own sense of right and wrong, rather than merely following external expectations. The individual sets and works towards her or his own goals and ideals. Additionally, an individual at this stage is more likely than individuals at lower levels to be concerned about others or other societies. Examples of item responses at this level include "My father—is loving but can be inconsiderate" and "My conscious bothers me if—I am not true to myself." At the E7: Individualistic stage, individuals have an integrated identity as a unique being. Greater tolerance for individuality and uniqueness

of others is demonstrated. A person at this stage realizes that individuals have different roles and may have different characteristics in those different roles. Examples of responses at this level include "I just can't stand people who—are insensitive to other people's feelings" and "Education—continues throughout life."

The SCT is a well-developed, psychometrically stable measure of ego developmental level. Although it does capture counseling-relevant information about the respondent's system for perceiving self, others, and relationships, it does not capture cognitions specific to clients, the counseling relationship, or the counseling process. This is a significant limitation, since, as reported earlier, cognitive complexity is context-specific and can vary widely by topic within the individual (Crockett, 1965). Using a general measure of cognitive complexity to represent the complexity of counselor cognitions about clients is inadequate and may lead to faulty conclusions or underestimated effects.

Summary of The Bases of Cognitive Complexity

In sum, these assessment methods come up lacking as a measure of complexity of counselor cognitions about clients. Some measures are appropriate and relevant for use as an assessment of overall cognitive complexity (e.g., SCT) or *differentiation* of cognitions about peers (RCQ), but no instrument has a specific focus on counselor cognitions about clients. Since cognitive complexity is domain specific (Crockett, 1965), a general measure may not be representative of complexity in a specific domain. It is clear from each of these methods that cognitive complexity is a difficult construct to measure. It requires quantitative and qualitative review of the respondent's thoughts.

The approaches used in the instruments above, however, inform the process of creating a counselor-specific measure.

Professional Development from Novice to Expert

In addition to the formative research on cognitive development presented above, there is a body of literature on the development of professional expertise. These theorists and researchers often address the changes in the cognitive processes that occur as the professional develops. The relevant findings in this line of research are summarized briefly below.

One of the seminal researchers in the field of expertise explored memorization strategies of novice and master chess players (de Groot, 1966). Chess players were shown pictures of chess boards for five seconds and then asked to recreate the location of the pieces. Expert players could recreate the board almost perfectly, while novice players were only able to locate a few pieces accurately. de Groot concluded that the striking memory differences were due to a memorization technique he called "chunking." He speculated that the expert chess players remembered formations, not individual chess pieces, and therefore were able to reconstruct the entire board. Expert physicians use the same technique in recognizing patterns of symptoms for more accurate and efficient diagnosis (Patel & Groen, 1986). Perhaps expert counselors use a similar chunking technique to process client characteristics.

Another relevant aspect of the cognitive processes of experts was explicated in a study of baseball players (Gray, 2004). Gray played an audio clip while expert batters practiced hitting. The expert batters were able to attend to the sound without affecting

the accuracy or execution of their swing. Perhaps the batters have achieved such expertise they do not need to attend to (i.e., perform automatically) the physical dynamics of the swing and are therefore able to attend to other sources of information. This principle, applied to counselors, suggests that mastering basic counseling techniques would allow counselors to focus their thoughts and attention on the client, rather than themselves.

Skovholt and Ronnestad (1992) described 20 themes in counselor expertise development that emerged from their qualitative review of semi-structured interviews with 100 counselors. The authors interviewed counselors ranging in experience level from first semester graduate students to practitioners with 40 years of experience. The sample was balanced with 50 percent men and 50 percent women, and all were residents of Minnesota. Of the 20 themes that emerged, three have particular relevance to cognitive development.

Theme 2 states that "An external and rigid orientation in role, working style, and conceptualizing issues increases throughout training and then declines continuously" (Skovholt & Ronnestad, 1992, p. 507). The authors cited the regulatory nature of a graduate program as the impetus for the rigid conceptualizations of counseling students. One interviewee reported that during a counseling session she was trying so hard to remember directions giving in class that she hardly heard what the client said. The authors stated that graduation and licensure represent a freedom from rigidity. More experienced counselors did not think in terms of how they were supposed to do things; rather, they used a more individualized system for counseling.

Theme 5 states "Conceptual system and role, and working style become increasingly congruent with one's personality and cognitive schemas" (p. 510, Skovholt & Ronnestad, 1992). In their interviews, Skovholt and Ronnestad found that method of conceptualizing a client was always congruent with the personality of the senior practitioners. Some of the more experienced interviewees reported shedding theoretical approaches that did not fit their own thoughts about client issues. This theme seems connected with theme 2 in that both represent a process of becoming more individualized in the cognitive tasks of counseling.

Theme 6 states "There is movement from received knowledge toward constructed knowledge." The authors reported that counseling students and novice practitioners receive information from others and have little confidence in their own knowledge (e.g., techniques for counseling, diagnostic criteria, ethical standards). Advanced practitioners construct their own understanding from previous training, clinical experiences, continuing education, and readings.

In sum, novice counselors are purported to demonstrate cognitive simplicity and rigidity, a lack of personal congruence, and a focus on external sources of information. Contrastingly, expert counselors can form individualized conceptualizations that are congruent with their own personal approach to counseling and draw from their internal body of knowledge to understand others. Skovholt and Ronnestad (1992) suggested that the themes be considered hypotheses and tested in future research. A measure of client specific counselor cognitive complexity would facilitate study of the counselor cognitive development process.

Counselor Cognitive Development

Developmental Models of Supervision

Since the emergence of developmental models of supervision in the early 1980s (e.g., Blocher, 1983; Loganbill, Hardy, & Delworth, 1982; Stoltenberg, 1981), most research and practice of counseling supervision has been done with the awareness that counselors' thoughts, feelings, behaviors, and needs change over the course of their professional life. Importantly, developmental models are all rooted in the theories of cognitive development, including those described earlier in this chapter. Blocher's work is based in Personal Construct Theory (e.g., Crockett, 1965; Kelly, 1955), Loganbill et al. in Erickson (1963) and Chickering (1969), and Stoltenberg in Conceptual Systems Theory (Harvey, et al., 1961).

Blocher, 1983

Blocher (1983) emphasized the importance of counselor cognitive development in his approach to counseling supervision. Since client issues are often complex, counselors must be able to recognize and synthesize multiple sources of information in order to reach an accurate understanding of the client's needs. They must be able to take multiple perspectives to understand the intricacies of the client's story. Blocher believed that individuals with greater cognitive complexity were less likely to stereotype clients and more likely to be able to integrate the complex, and often inconsistent, information about the client. Therefore, counselors who are more developed cognitively are better able to understand, empathize, and facilitate change in clients. Thus, higher cognitive complexity is a goal of supervision.

Blocher (1983) called on supervisors to encourage supervisees' cognitive growth so that they might develop a more comprehensive system for understanding clients. He suggested an optimal balance of challenge and support is most effective in stimulating development. That is, supervisees who are not challenged by the learning experience will not grow. Similarly, supervisees who are challenged too much become overwhelmed and are not able to learn effectively. Blocher suggested that supervisors can manage this balance by choosing clients who are not too complex for the supervisee's level of development and by being warm, empathetic, and encouraging when the supervisee needs support. In addition, supervisors must structure supervision to address a few, manageable learning tasks. Complex, ambiguous, or superfluous supervision may limit the supervisee's ability to learn. When learning new behaviors, supervisees also must take time to integrate the new behaviors into their former ways of being in order to sustain the progress. Blocher's supervision approach is clearly a specialized process with goals of assessing supervisee needs and promoting growth by choosing interventions based on the supervisee's current capacities. However, Blocher did not specify how supervisors can assess supervisee level of cognitive complexity, nor did he detail specific techniques for facilitating cognitive growth.

Loganbill, Hardy, and Delworth, 1982

Loganbill, Hardy, and Delworth (1982) also addressed the importance of supervisee cognitive development in their model of supervision. They contended that supervisees pass through three stages of development across eight critical issues. The stages include a period of stagnation when the supervisee is relatively stable but not

growing, a period of confusion when the supervisee has become aware of an issue but has not resolved it, and a period of *integration* when the supervisee has developed a new way of addressing the issue. Of the eight critical issues in supervision (i.e., Competence, Emotional Awareness, Autonomy, Identity, Respect for Individual Differences, Purpose and Direction, Personal Motivation, and Professional Ethics), two relate directly to cognitive development.

Loganbill et al. (1982) described issues of Purpose and Direction as including cognitive tasks of a counselor (e.g., developing a treatment plan). They contended that counselors must develop a cognitive map of how the client's goals can be met in counseling. A counselor in the first stage of development has an inadequate cognitive map for the client. The counselor may allow the client to direct the counseling session or may have the same plan for meeting all clients' needs. Supervisees in this stage should be stimulated to address this inadequacy. Their new awareness marks their transition to stage two, confusion. A supervisee who is in the confusion stage realizes that he or she needs to develop a treatment plan for the client but may not consider all of the relevant client variables, what are realistic goals, or how to facilitate treatment interventions. When a supervisee resolves these issues, he or she moves into stage three, *integration*. *Integration* is marked by the acceptance of the counselor's limitations to effect change on the client and the increased ability to develop attainable treatment goals.

Cognitive development also is related to the issue of Respect for Individual Differences. In their description of this issue, Loganbill et al. (1982) implied the need for counselors to be able to think complexly about human qualities. They stated that

counselors must be able to view clients as individual people and recognize and appreciate their unique traits and values. Effective counselors are able to recognize qualities of the client that should be accepted and qualities that are maladaptive. Counselors who are in the first stage of stagnation often have biased impressions of their clients as a result of their incomplete understanding of the client's characteristics. Bias or prejudicial judgment often occurs in subtle ways and outside of the counselor's awareness. For example, all professional counselors have completed undergraduate and graduate degrees. They are likely to be strong supporters of higher education and have subtle stereotypes about characteristics of people who attend college and characteristics of people do not attend college. This value may bias the counselor's impression of a client who has not attended college and may come across in her or his discussion of career satisfaction, identity issues, or parenting. If the counselor is not aware of her or his biases, the risk of disrespecting the client is increased. Counselors move into stage two, confusion, when they realize they are viewing a client disrespectfully or prejudicially. Supervisees at this stage may deny the issue or feel guilty for their thoughts about the client. A counselor who is in the *integration* stage is aware of her or his biases and is constantly trying to learn more about the client and prevent hasty judgments. This process of being able to think about clients as individuals rather than types based on group membership is closely related to the complexity of the counselor's cognitive system.

In their descriptions of the two supervisee issues, Purpose and Direction, and Respect for Individual Differences, Loganbill et al. (1982) provided behavioral indicators

that may reveal the supervisee's level of development. The model does not include a detailed way to assess supervisee level of cognitive development other than these basic behavioral characteristics. In a commentary about this model, Miller (1982) stated he found it lacking in attention to supervisee cognitive development. He believed, like Blocher (1983), that supervisee cognitive development is fundamental to counselor effectiveness.

Loganbill et al. (1982) did include five types of supervisor interventions that they believed facilitate supervisee development: facilitative, confrontive, conceptual, prescriptive, and catalytic interventions. Three of these seem most relevant to supervisee cognitive development. Facilitative interventions include establishment of a supportive supervisory relationship in which the supervisee feels safe and is able to be self-reflective. A confrontive intervention addresses supervisee incongruencies and creates dissonance in the supervisee that will drive change. A conceptual intervention is used to link the supervisee's practice with underlying theory and improve the supervisee's understanding of the counseling process. These types of interventions are described in general, but few specific techniques are offered. In addition, few recommendations about which interventions would be most appropriate for supervisees at various developmental levels are included.

Stoltenberg, 1981

Stoltenberg's (1981) Counselor Complexity Model includes four levels of counselor development and four corresponding optimal environments. The four levels of counselor development are dependent on supervisor, dependency-autonomy conflict,

conditional dependency, and master counselor. Each level is marked by different supervisee characteristics and needs. Stoltenberg also described four optimal environments of varying levels of supervisee autonomy that are indicated to match supervisee needs. This model of counselor development is based in Conceptual Systems Theory (Hunt, 1971). Stoltenberg emphasized the unique developmental path of each supervisee, including a reference to Hunt's (1971) finding that cognitive development is facilitated by exposure to proper learning environments. Again, supervisors are called on to accurately assess the developmental needs of the supervisee and tailor supervision to meet those needs. Stoltenberg suggested that conceptual level is evident in in-class behaviors and in student performance on semi-structured assessments such as paragraph completion tasks. The strengths and weaknesses of the paragraph completion method of assessing cognitive complexity were detailed earlier in this chapter. No specific criteria are given for evaluating student in-class behavior. Upon accurately assessing the supervisee's developmental level, the supervisor is then called upon to create an environment that is optimal for the growth of an individual at that level, sometimes called a one-half step match (Borders, 2001). Stoltenberg reported that a supervision environment that is optimal at one level is suboptimal for supervisees at a higher stage and superoptimal for supervisees at a lower stage. Though there are specific interventions recommended for supervision with supervisees at the four levels, choosing and using them appropriately relies on accurate assessment of supervisee developmental level. A good measure of counselor cognitive developmental level would enable supervisors to better apply Stoltenberg's suggested techniques.

Summary of Developmental Models of Supervision

In all three developmental models of supervision, supervisors are called to match the individual developmental needs of their supervisees in order to maximize growth. In order to do so, supervisors must assess the developmental level of the supervisee, which in large part involves the supervisee's level of cognitive development, choose a corresponding supervisory intervention, assess the effectiveness of the intervention, and maintain or modify the intervention as needed. This sequence of tasks must be constantly repeated in order to facilitate supervisee development efficiently and effectively. None of the models, however, give supervisors all of the needed tools to accomplish this assessment. Rather, as with other models or theories of supervision and counseling, they provide a framework for practice, not a step by step guide.

Aspects of these developmental models of supervision have been subjected to research and have, in general, been supported by the empirical results and practice (e.g., Borders, 1991; Borders & Brown, 2005; Worthington, 1987). Results of some research studies have been inconclusive, perhaps due to the complexity of supervisee and supervisor factors in the supervision process (e.g., Holloway, 1987). In sum, the developmental models of supervision emphasize the changing nature of the supervisee's thoughts, feelings, and behaviors and their changing needs in supervision. "To be a true educational enterprise, supervision must be proactive, deliberate, intentional, and goal directed, involving active learning strategies designed to engage a particular supervisee" (Borders, 2001, p. 418). Specifically, to facilitate counselor cognitive development, supervision must begin with accurate assessment of supervisee cognitive complexity and

continue with calculated interventions that will increase the accuracy of the supervisee's understanding of the client.

Studies of Counselor Cognitive Development using General Measures

Developmental models of supervision provide a framework of overall counselor development. Counselor cognitive development has been isolated as a crucial aspect of counselor preparation in these models. The importance of counselor cognitive complexity has been supported by investigations of the relationship of counselors' overall cognitive complexity and their counseling performance.

Holloway and Wolleat, 1980

In a seminal study of counselor cognitions, Holloway and Wolleat (1980) explored the relationship of counselor conceptual level and ability to formulate clinical hypotheses. The researchers had two questions: 1) is there a significant relationship between conceptual level and the use of informational referents in forming clinical hypotheses, and 2) is there a significant relationship between amount of professional counseling experience and the use of sources of information in forming clinical hypotheses. Holloway and Wolleat used the Paragraph Completion Method (PCM; Hunt, Butler, Noy, & Rosser, 1978) to assess the general conceptual level of the counselors. The PCM is a semi-projective instrument that assesses respondent conceptual level at hierarchical levels zero, one, two, and three. Respondents were encouraged to write at least three sentences in response to each of six sentence stems. The level assigned to each respondent purportedly represents the overall complexity of the thought structure underlying the response. Two trained raters scored participant responses based on a

protocol that distinguishes characteristics of thinking processes (e.g., concrete, abstract reasoning, rule-bound). Holloway and Wolleat reported an inter-rater reliability of .85 to .90. In addition, Holloway and Wolleat used a written adaptation of the Clinical Assessment Questionnaire (CAQ; Watson, 1976) to assess clinical hypothesis formulation. On the CAQ, respondents write formulations and hypotheses about the client's problems. The written responses are scored by trained raters for the presence or absence of six elements of hypothesis formation: understanding client characteristics, time frame, categories of supportive information, amount of supportive information, categories of information sought, and divergent questions asked. Results indicated that counselor conceptual level is significantly related to clinical hypothesis formation but not to months of experience. Specifically, Holloway and Wolleat found that counselors at higher conceptual levels asked more questions about the client and formulated clearer hypotheses overall. Though they cited a small sample size of 37 as a methodological limitation, these findings indicate conceptual level and experience level are not synonymous, and perhaps conceptual level is more related to effective practice than years of experience.

Goldberg, 1974

In an early study of the impact of cognitive complexity on counselor performance, Goldberg (1974) investigated therapeutic communication in 86 first semester master's counseling students. Goldberg used a measure of general conceptual level called the Conceptual Systems Test (CST; Harvey, 1967). Harvey defined conceptual system as the basis for how individuals relate to the environmental events they experience. The CST

includes 67 statements of beliefs that represent six factors: Divine Fate Control, Need for Structure-Order, Need to Help People, Need for People, Interpersonal Aggression, and Anomie. Respondents indicate the degree to which they agree with the belief. Respondents are then classified into one of four hierarchical systems based on their reported beliefs. System 1 is called unilateral dependence and is marked by concrete, simplistic, rule-bound, categorical thinking. In Goldberg's study, 13 participants were classified as System 1. System 2 is called negative independence and included 17 of Goldberg's respondents. System 2 thinking is still categorical but also oppositional to external authority. System 3 thinking, called conditional dependence, is marked by more cognitive complexity and empathetic relationships. Forty-one of Goldberg's participants were classified in System 3. Finally, System 4 thinkers, called informational interdependence, are the most complex. They possess the capacity for abstract thought and multiple perspective-taking. There were 15 System 4 respondents in this study. Goldberg noted that no sex differences were found in the distribution of respondents across system levels. It is notable that although the respondents were all first-semester masters' students, their conceptual levels varied significantly, thus conceptual level is not synonymous with experience level.

In addition to assessing conceptual level, Goldberg (1974) sampled the respondents' counseling behavior using 20 client descriptions. Each respondent was asked to give a helpful verbal response to a simulated client stimulus. The responses were evaluated for effectiveness by two sets of criteria: Interaction Analysis Category and the Counselor Verbal Responses Scale. Interaction Analysis Categories included

accepts feelings, gives praise/encouragement, accepts ideas of client, asks questions, gives information or opinions, gives directions, and criticizes or judges authoritatively. The Verbal Response Scale classifies counselor responses across 4 dichotomies: affective-cognitive, understanding-nonunderstanding, specific-nonspecific, and exploratory-nonexploratory. Trained raters classified the responses with an inter-rater reliability of .78 to .92. Goldberg concluded that students with lower conceptual levels were more likely than students with higher conceptual levels to give directive feedback. Goldberg contended that this tendency comes from their concrete, simplistic thinking about how the client should or should not behave. System 3 and 4 respondents were most likely to give a response that accepted the ideas of the client, addressed client feelings, encouraged exploration, and conveyed sensitivity. Despite the limitation that the client was simulated in this study, the results are important. Counselors with advanced conceptual systems responded to a client situation in more therapeutic ways. Goldberg concluded that conceptual level is an important consideration in the preparation of new counselors.

Holloway and Wampold, 1986

Holloway and Wampold (1986) included these two studies and 22 others in their meta-analysis of the relationship between conceptual level and counseling tasks. They also explored the effect of matching respondent conceptual level with environmental structure. Conceptual Systems 1 and 2 were classified as low conceptual level and systems 3 and 4 were classified at high conceptual level. The hypotheses of the study were clear. First, they expected high conceptual level individuals would perform

counseling-related tasks better than low conceptual level individuals. Second, they expected individuals in highly structured environments would perform better than individuals in non-structured environments. Finally, they expected individuals in environments that matched their conceptual level would perform better than individuals in mismatched environments. For the final hypothesis, Holloway and Wampold speculated that, based on conceptual systems theory, individuals with high conceptual levels would be best suited for low-structure environments, while individuals with low conceptual levels would be best suited for high-structure environments. The researchers reviewed studies conducted on conceptual level between the years of 1967 to 1983. They evaluated each study to determine if it included the information needed to answer any of the three stated hypotheses.

Although more than half of the studies included in the meta-analysis were conducted with undergraduate participants, the results are still informative. The first hypothesis was evaluated by a review of eight studies. Holloway and Wampold (1986) concluded that participants with high conceptual levels were better able to perform the complex tasks of a counselor, though they cited a limitation that the counseling task itself varied across the eight studies (e.g., response formation and communicating empathy). Based on a review of 16 studies, their second and third hypotheses also were supported. Specifically, respondents with high complexity levels were able to perform well in environments with high and low structure, while the low complexity respondents required structure to perform well. These findings are significant for counselor educators and

supervisors, as conceptual level does impact performance of counseling tasks and need for environmental structure.

Borders, Fong, and Neimeyer, 1986

In further support of Holloway and Wolleat's (1980) findings, Borders, Fong, and Neimeyer (1986) studied 63 counseling students' perceptions of their clients. The researchers used the Repertory Grid Technique (Kelly, 1955; Neimeyer & Neimeyer, 1981) to assess client cognitions and used the Sentence Completion Test of Ego Development (SCT; Loevinger & Wessler, 1970) to assess cognitive complexity, termed "ego developmental level" in this measure. The questions addressed in the study were what is the impact of student ego developmental level and experience level on 1) the complexity of thoughts about clients and 2) content of thoughts about clients. On the Repertory Grid Technique, respondents listed eight clients who were then grouped into eight combinations of three clients. The respondent was presented with each grouping of three and asked to describe how two of the clients were similar and how they were different from the third client (e.g., these two clients are "straightforward" while the third is "manipulative"). Respondents also were asked to indicate if each characteristic was positive or negative and give a rating (-3 to +3) for each client on the given characteristic. A computer program called ELTORP II (Landfield & Schmittdiel, 1983) was used to score the responses for cognitive ***differentiation*** and ***integration***. The SCT was used to assess participant ego developmental level. As previously described, the SCT captures counseling-relevant information about the respondent's system for perceiving self, others, and relationships. Among the 63 participants, five levels of ego development were found:

1 at level Delta, 1 at level Conformist, 16 at level Self-Aware, 39 at level Conscientious, and 6 at level Individualistic (in order of least to highest cognitive complexity level).

Like Holloway and Wolleat (1980), Borders et al. (1986) found that experience level did not differentiate between students' client perceptions. They did find an effect for ego developmental level. The overall impact of student ego developmental level on complexity and content of thoughts about the client was inconclusive, perhaps due to small sample size. However, there were some differences found among thought content across ego levels. For example, respondents at the Self-Aware level were more likely to use psychological descriptors while Individualistic respondents used more interactional statements. From these findings, the authors concluded that students at higher ego levels seemed to have a greater awareness of the dynamics of the counselor-client relationship. The authors also emphasized the importance of evaluating respondents' thoughts for both complexity and content to find subtle effects like this one. The results of the study support both the importance of counselor cognitive development in training and supervision, and the need for additional research into the intricate impact of counselor cognitive complexity on performance.

Borders, 1989

In a further study, Borders (1989) performed a content analysis of cognitions of first practicum supervisees. The six hypotheses about supervisees at higher ego levels versus supervisees at lower ego levels included the following: 1) they would report thoughts about themes or patterns about the client; 2) they would report thoughts about other counseling sessions or experiences that connect to the current session; 3) they

would focus on the client and the client-counselor relationship; 4) their thoughts would be more abstract and would focus on internal characteristics of the client; 5) they would respond in a professional, rather than a personal, way; and, finally 6) they would report neutral, analytical thoughts about themselves and the client. Borders chose the Sentence Completion Test of Ego Development (SCT; Loevinger & Wessler, 1970) to measure the overall cognitive complexity of the participants. Of the 27 first practicum students included in the study, three ego development levels were represented: I-3/4 self-aware, I-4 conscientious and I-4/5 individualistic. As in Goldberg's (1974) study, the participants had varied levels of cognitive complexity despite having the same level of counseling experience. Participants were asked to videotape a counseling session and review the tape immediately following the counseling session. As participants watched the tape, they talked aloud about their thoughts and feelings in the session. These recall sessions were taped, transcribed, and reviewed to code the retrospections. Borders used the Dole et al. (1982) coding system to classify student thoughts according to time, place, focus, locus, orientation, and mode.

Results provided support for some of the hypotheses. Borders (1989) found that students who scored higher on Loevinger's ego development measure had more objective and positive thoughts during a counseling session. Students who were at a lower level of ego development (i.e., I-3/4: self-aware) frequently reported frustration or irritation with the client or with their own performance in the session. All participants focused on psychological characteristics of the client in the present session. Participants at all ego levels used few planning statements and showed no recognition of patterns or themes.

Results from this study suggest the effect of ego developmental level on some aspect of counselor performance is clear (e.g., counselor objectivity). But on other aspects of counselor performance, ego developmental level seemed to have a minimal effect. Perhaps these aspects of counselor performance are more impacted by training or experience level. Despite the small sample size and the limited range of ego levels represented, the results have important implications for counselor cognitive development. Some important counseling tasks are performed better by individuals at higher levels of ego development, regardless of training and experience level. This finding emphasizes the importance of facilitating counselor cognitive development in training and supervision.

Borders and Fong, 1989

The relationship of overall cognitive complexity and counselor performance was further examined in a 1989 study by Borders and Fong. In this two-part study, the authors examined ego development and counseling ability in beginning and advanced students. Eighty beginning counseling students and 44 advanced students participated in the study. As in past studies, the Sentence Completion Test of Ego Development (SCT; Loevinger & Wessler, 1970) was used to assess level of ego development. Counseling performance was assessed differently for beginning and advanced students. Beginning students' counseling skills were assessed using ratings of effectiveness based on practice session tapes from the beginning and end of the first practicum. Effectiveness ratings were assigned by trained raters using an eight point continuum from damaging and ineffective communication to accurate and facilitative responding. The inter-rater

reliability was .91. In addition, a videotaped counseling skills exam, administered at the end of the semester, assessed the student's ability to demonstrate eight counseling skills: warmth, empathy, genuineness, concreteness, self-disclosure, advanced empathy, confrontation, and immediacy. Raters assessed the effectiveness of the students' counseling performance on each of the eight competencies. The inter-rater reliability was .90. Advanced students' counseling ability was assessed using the Vanderbilt Psychotherapy Process Scales (VPPS; O'Malley, Suh, & Strupp, 1983; Suh, Strupp, & O'Malley, 1986). The 80 likert items on the VPPS assess counselor behaviors and attitudes such as warmth and friendliness, negative attitudes, and explorative behavior. Finally, respondents were grouped into training levels: first practicum, second practicum, and internship.

No significant relationship was found between training level and counseling skills. The effect of ego developmental level on counseling effectiveness was complex. Beginning counselors' performance was significantly related to ego developmental level, but the effect was less distinct by the end of the initial practicum. Performance at the end of initial training was better predicted by initial performance than ego level itself. For the advanced students, there was a non-significant trend for higher ego developmental levels to be associated with higher counseling performance scores. The lack of significant findings in the advanced students may be the result of the variability of the clients in the taped sessions or the instructional experiences of the participants. These factors are difficult to control in a naturalistic study. The results do suggest the importance of cognitive development in counselor training. Perhaps the students who begin with higher

ego levels are more insightful about counseling tasks, while those who do not arrive with high ego levels start at a lower skill baseline but can improve with instruction.

Fong, Borders, Ethington, and Pitts, 1997

In the first longitudinal study of counselor cognitive development, Fong, Borders, Ethington, and Pitts (1997) found support for the importance of facilitating cognitive development in counselor training programs. The research questions proposed included the following: 1) Do counselor cognitions change during the counseling program? 2) Do counselor response behaviors change over the course of skills training? 3) What is the relationship between change in cognition and change in counselor effectiveness over the course of skills training?, and, 4) At what points in the counseling program do cognitive changes occur? Forty-three master's counseling students were assessed five times from the beginning to end of their graduate program. Student cognitive development was assessed using the Sentence Completion Test of Ego Development (SCT; Loevinger & Wessler, 1970), the Dole et al. (1982) coding system, and the Stress Appraisal Scale (SAS; Carpenter & Suhr, 1988). The SAS assesses respondents' own thoughts and feelings about providing counseling services. The Hill Counselor Verbal Response Category System (HCVRCS; Hill, 1985) and the Global Rating System (GRS; Gazda, Asbury, Balzer, Childers, & Walters, 1988) were used to classify counselor responses. The HCVRCS is a classification system that groups counselor statements in nine categories by response structure: approval, information, direct guidance, closed question, open question, paraphrase, interpretation, confrontation, and self-disclosure. Scores on the HCVRCS had an inter-rater reliability of .82 to .93.

Results provided varied support for the hypotheses. Fong et al. (1997) reported that student ego developmental level (SCT) did not change over the course of the program. They speculated that perhaps the SCT is too general and the levels are too broad to capture changes in cognitive complexity that occur during a counseling graduate program. This speculation supports Loevinger's assertion that ego level in adults is relatively stable (Loevinger, 1976). Despite this finding, counselor cognitions and counselor effectiveness did change significantly over the course of the program. Over time, students used more complex and effective responses, had more confidence in their work, and found counseling less difficult. Interestingly, students who initially scored high on the SCT showed less dramatic changes in cognitions, perhaps due to a ceiling effect. Despite the small sample size, these results are informative. The authors suggested additional longitudinal studies of counselor cognitive development and cited the need for more specific measures of counselor cognitions.

Duys and Hedstrom, 2000

In a pre-post experimental study, Duys and Hedstrom (2000) found results different from the Fong et al. (1997) conclusions. Duys and Hedstrom studied the effect of a counseling skills course on counselor cognitive complexity. The study design included two groups. The treatment group included 36 students enrolled in a counseling skills class while the control group was comprised of 36 individuals who were enrolled in other coursework and had not previously taken the counseling skills class. The basic skills course included microskills training and client simulations. The classes taken by control group participants included group counseling, research methods, assessment, and

ethics. The authors used the Role Category Questionnaire (RCQ, Crockett, Press, Delia, & Kenney, 1974) to assess counselor cognitive complexity. As previously described, the RCQ captures respondent impressions of a liked and disliked peer. The number of characteristics listed is the construct *differentiation* score. Students participating in the counseling skills course increased in construct *differentiation* more than those participating in other courses. The authors stated a limitation of the RCQ is that it does not capture information specifically about clients; rather, it captures cognitions about peers. It is unclear if cognitions about peers are representative of cognitions about clients. Duys and Hedstrom suggested that a more refined instrument may better capture counselor cognitions about clients. Despite these limitations, the results do indicate that participation in a counseling skills course may impact counselor conceptualization skills.

Perhaps the specificity of Duys and Hedstrom's (2000) measure is the root of the difference in these findings and those of Fong et al (1997). Fong et al. used a measure of general cognitive complexity that tends to be stable over time (SCT; Hy & Loevinger, 1998). The measure used by Duys and Hedstrom specifically assessed peer conceptualizations. Though the exact relationship of peer conceptualization to client conceptualizations is unclear, the measure certainly assesses cognitive functions that are similar to those required of counselors, since respondents describe a known person as completely as they can. Perhaps the experience of a counseling skills class can increase the complexity of case conceptualizations, but cannot incite enough change that the individual moves to a higher SCT level.

Little, Packman, Smaby, and Maddux, 2005

Little, Packman, Smaby, and Maddux (2005) also used the RCQ to assess counseling student cognitive development. They explored the impact of the Skilled Counselor Training Model (SCTM; Smaby, Maddux, Torres-Rivera, & Zimmick, 1999) on counseling skills and counselor cognitive development. Fifty-nine master's counseling students who were enrolled in three counseling classes participated in the study. Two of the classes (40 students total) served as the experimental group and received instruction in the SCTM. The third class of 19 students were enrolled in a introduction to counseling class that did not include SCTM. The SCTM curriculum emphasizes skill development, self-awareness, and case conceptualization. The researchers hypothesized that counseling students who completed the Skilled Counselor Training Model would have higher RCQ scores than those students who did not have the training. All students completed the RCQ in the first and last class of the semester. Using a Mann-Whitney U Test, the researchers determined that there was a significant difference in the post-test RCQ scores of students in the control and experimental groups (experimental group: $\underline{M} = 20.55$, $\underline{SD} = 9.06$; control group: $\underline{M} = 12.89$, $\underline{SD} = 2.03$). The researchers concluded that the Skilled Counselor Training Model was successful in increasing student cognitive complexity. They reflected that, as with the Duys and Hedstrom (2000) finding, the growth in cognitive complexity may be due to the supervised experiential activities that are part of the model. Regardless of the catalyst for the change, the limitation remains that the RCQ is a measure of interpersonal construct *differentiation* and not complexity of counselor cognitions about a client.

Brendel, Kolbert, and Fostor, 2002

Brendel, Kolbert, and Fostor (2002) also conducted a brief longitudinal study of counselor cognitive development in order to assess a counseling graduate program's effectiveness in promoting cognitive development. The research questions were the following: 1) Does level of moral reasoning change during the program? and 2) Does level of cognitive complexity change during the program? Brendel et al. assessed 32 master's counseling students at the beginning of the program, after year one, and after completion of the program. The Paragraph Completion Method (PCM; Hunt, Butler, Noy, & Rosser, 1977) was used to assess general cognitive complexity and the Defining Issues Test (DIT; Rest, 1979) was used to assess level of moral reasoning. This version of the PCM included six item stems. Respondents were asked to write at least three sentences in response to the stems (e.g., "When I am criticized…). The responses were scored by one trained rater per the scoring protocol (Hunt et al., 1977), so no inter-rater reliability is available. The DIT is based on Kohlberg's theory of moral development and consists of three moral dilemmas and 12 corresponding statements of facts to consider in the dilemma. Respondents indicate the importance of the considerations in their decision about the dilemma. The responses are compared to a key and a corresponding score of moral reasoning level is assigned. The authors reported a significant gain in counselor cognitive complexity from time one to time three and a positive but non-significant trend for gain in moral reasoning level. Several limitations were cited, including limited sample size and non-CACREP status of the graduate program being studied.

On the surface, the results seem to conflict with the Fong et al. (1997) results and confirm the Duys and Hedstrom (2000) findings. But, again, perhaps the measure of cognitive complexity is responsible for the varied results. The paragraph completion method samples cognitive functioning in a way that is different from the SCT. Perhaps the skills that are taught in a counseling program improve a student's ability to write the conceptualizations based on item stems in the PCM.

Granello, 2002

In a cross-sectional study of counseling student cognitive development, Granello (2002) also found that advanced students had significantly higher levels of cognitive complexity than did beginning students. Granello classified 205 students as beginning, middle, and end of the program groups. The Learning Environment Preferences (LEP, Moore 1989) was used to assess student level of cognitive development. The LEP consists of 65 statements that relate to epistemological approaches to learning. The statements are grouped into five domains: view of course content, role of the instructor, role of the student and peers in the classroom, the classroom atmosphere, and role of evaluation. Granello made minor modifications to the statements to make them more applicable to counselor education (e.g., "To learn counseling at my present level in the counseling program, my ideal environment would…" instead of "My ideal learning environment would…"). Respondents indicate three of the thirteen statements in each domain that are of the highest importance. The scoring method is based on the assumption that individuals at different levels of cognitive complexity prefer different learning environments. Each respondent is given a numerical cognitive complexity score

which corresponds to the continuum of cognitive development delineated by Perry (1970). The levels are dualistic thinking (dichotomous black and white structure), multiplistic thinking (uncertain structure, search for information), relativistic thinking (knowledge is contextual), and committed relativism (moral and ethical beliefs). Moore (1989) reported internal consistency scores of .72 to .84 for each position across the five domains. Granello found that, overall, students at the end of their programs scored higher than students at the beginning of their programs. Interestingly, neither Granello nor Brendel et al. (2002) found significant differences in cognitive complexity in students at the beginning and middle of the program. They both suggested that participation in internship, which occurs in the second year of the program, could be the catalyst for significant cognitive development.

Lovell, 1999

Lovell (1999) studied counselor cognitive development and empathy in 340 counseling students. Lovell sampled student members of the American Counseling Association using the Hogan Empathy Scale (Hogan, 1969) and the Learning Environment Preferences (LEP; Moore, 1989). The Hogan Empathy Scale is a 38-item true-false measure of empathic disposition. The LEP, described above, was used to assess cognitive complexity. Lovell reported a moderate positive correlation ($\underline{r} = .31$) between cognitive complexity and empathy. A correlation of this magnitude does suggest an important link between cognitive complexity and empathy; however, it also demonstrates that there are unknown factors that also impact empathy. Lovell cited the limitation that other factors known to impact empathy were not studied. Future

researchers, he asserted, could clarify the relationship of cognitive complexity and empathy more completely.

McAuliffe and Lovell, 2006

In a qualitative study of counselor cognitive complexity, McAuliffe and Lovell (2006) explored differences in counseling performance of students who scored low and high on a measure of cognitive complexity. McAuliffe and Lovell used the Learning Environment Preferences scale (LEP; Moore, 1989), described above, to assess cognitive complexity of students in a first semester counseling skills class. They then selected the 12 students who scored the highest and lowest on the measure. Through qualitative review of their transcribed counseling sessions, the authors described five themes in the participants' counseling behaviors. First, participants with low levels of cognitive complexity, called "dualistic" thinkers on this measure, conflated their own points of view with those of the clients. Contrastingly, participants with high levels of cognitive development, called "relativistic" thinkers on this measure, were able to communicate true empathy. A second theme of superficiality versus perspicacity emerged. The authors noted that participants with low cognitive complexity focused on concrete aspects of the client's story, while participants at higher levels of cognitive complexity were able to identify themes and patterns. A third theme was evident in the difference in reflectiveness among participants. Low complexity participants acted habitually and used general statements and questions, while high complexity participants showed the ability to think about their own work and how they chose their statements. McAuliffe and Lovell also noticed a theme around the subject's tolerance of ambiguity. Low

complexity participants were more likely to target one explanation for the client's issue, while complex thinkers recognized uncertainty and complexity of the issue. A final theme emerged around the use of evidence. Low complexity thinkers often foreclosed on a solution while highly complex thinkers considered the evidence and used interventions that were based in that evidence. Though the authors cited the limitations of a small, qualitative study, the importance of cognitive complexity on counselor performance is clear. Participants with higher levels of cognitive complexity were able to remain de-centered, empathic, and inquisitive in the session. Participants at lower levels of complexity did not show accurate empathy, foreclosed on causes and solutions, and used vague, irrelevant questions. The authors concluded from these qualitative results that an emphasis on facilitating cognitive development is crucial for counselor education.

Summary of Studies of Counselor Cognitive Development using General Measures

Researchers have demonstrated that there are cognitive differences between students in the beginning and end of counseling master's programs (Brendel et al., 2002; Fong et al., 1997; Granello, 2002). Additionally, increased cognitive complexity has been linked empirically to counselors' ability to formulate clinical hypotheses, provide complex descriptions of clients, give appropriate feedback to the client, and remain objective in counseling sessions (Borders, 1989; Borders & Fong, 1989; Borders et al., 1986; Duys & Hedstrom, 2000; Fong et al., 1997; Holloway & Wolleat, 1980; Lovell, 1999; McAuliffe & Lovell, 2006). Counselors with higher levels of cognitive development perform better in complex or ambiguous environments, report greater

counseling self-efficacy, and find the work less difficult (Fong et al., 1997; Holloway & Wampold, 1986).

One limitation of each of these studies, however, is the measure of cognitive development. The general measures used (Paragraph Completion Method, Conceptual Systems Test, Sentence Completion Test, Role Category Questionnaire, and Learning Environment Preferences) do not capture information specifically about the complexity of counselor cognitions about clients. As stated by many of the researchers, a more specific measure of counselor cognitions is needed to advance research on counselor cognitive development. The specific measure that was used, the Role Construct Questionnaire (Crockett, 1965), was a measure of complexity of cognitions about peers, not clients. This is a significant limitation since cognitive complexity is domain specific. The complexity of cognitions about peers might not accurately represent the complexity of cognition about clients.

Studies of Counselor Cognitive Development using Specific Measures

Several researchers have made modifications to general measures of cognitive complexity in order to capture cognitions that are more directly related to counselor performance (Falvey, Bray, & Herbert, 2005; Kurpius, Moran & Benjamin, 1985; Ladany, Marotta, & Muse-Burke, 2001). These assessments yield a cognitive complexity score based on written case conceptualizations. Research findings using these instruments are detailed below.

Kurpius, Moran, and Benjamin, 1985

Kurpius, Moran, and Benjamin (1985) used a thought listing technique to assess cognitive complexity in their study of 32 pre-practicum counseling students. They explored the effectiveness of a cognitive self-instruction strategy in improving counselor cognitive tasks. Students were randomly assigned to one of four treatment groups. The first group received training in Meichenbaum's (1980) cognitive self-instruction strategy. Meichenbaum's model includes the following steps to help counselors prepare for the tasks of counseling: 1) ask self what is the nature of the counseling task?, 2) rehearse answers to those questions, 3) guide the task performance with self-instructions about what needs to be accomplished, 4) use internal dialogue to talk through difficulties, and 5) give self positive reinforcement throughout the process. The second group received training in clinical hypothesis formulation. The training included rehearsing four steps for hypothesis formulation: 1) identify the client's major issue; 2) identify internal and external factors in the issue; 3) identify connections among the factors; and 4) identify the cognitive, affective, and behavioral aspects of the problem. The third group received both trainings. The fourth group served as a control group and viewed a film about communication skills. Students then watched a videotape of eight sections of a counseling session and were asked to list their thoughts about the client stimulus during the pauses between sections. The authors developed a scoring system based on the hypotheses that two experts formulated from viewing the same client videotape. Raters used the system and awarded one point for each thought that represented one of four clinical hypothesis categories: reflecting the client issues, stating a factor of the client's

issue, relating a factor to the issue, and differentiating or integrating problems. In addition, one point was given for thoughts that asked or answered questions about the client's issue, indicated future plans for counseling, revealed counselor coping skills, or supported the counselor's self-efficacy. A sum score was used, in conjunction with a 0 to 10 score for accuracy, as an indication of the respondent's ability to perform the conceptual tasks required of counselors. The authors reported high inter-rater reliabilities of .91 for thought listing and .98 for clinical hypotheses.

ANOVA results indicated that the two groups that received training in the cognitive self-instruction strategy scored significantly higher complexity levels than those who did not receive the training. These results suggest that receiving instruction on Meichenbaum's cognitive strategy improved the ability of counselors to perform the conceptual tasks that are required for hypothesis formulation. The authors also performed a six-week follow-up evaluation to see if the treatment effects remained. No differences between the groups were observed at the six week follow-up. The authors speculated that one brief training on the cognitive self-instruction method was not sufficient to sustain long term gains. Despite the small sample size, the results of this study support the importance of cognitive processes in counseling tasks. The measures used were appropriate for the hypotheses posed, but they do not specifically measure counselor cognitive complexity. Kurpius et al.'s method for scoring student thoughts yields information about a specific counseling skill: hypothesis formulation. It taps into their knowledge of the client issue, symptomology, and treatment planning, but it does not assess cognitive complexity. However, compared with the measures of general

cognitive complexity, asking students to list thoughts about a client is a more specific method for assessing client cognitions.

Falvey, Bray, and Herbert, 2005

In another attempt to measure complexity of counselor case conceptualizations, Falvey, Bray, and Herbert (2005) studied licensed clinicians' problem solving and clinical judgment. They explored the following questions in this study: 1) what impact does cognitive focus during the case review process have on case conceptualization and treatment planning tasks? 2) what problem-solving styles are evident during the case review, and how do they effect case conceptualization and treatment planning? 3) what clinical judgment strategies best characterize clinician approaches to case conceptualization and treatment planning? And 4) can case conceptualization and treatment planning scores be predicted by a classification scheme that distinguishes among problem solving styles and clinical judgment strategies?

To answer these questions, 20 practicing clinicians completed the Clinical Treatment Planning Simulation (CTPS; Falvey, 1994) and a follow-up interview about their process of diagnosis and treatment planning. The CTPS contains a written intake of a client. The intake and a corresponding diagnostic profile and treatment plan were developed by experts to represent a client with ADHD. Clinicians were asked to "think aloud" while they reviewed the case materials. These thoughts were taped and coded for conceptual themes such as problem solving style and clinical judgment, and focus of case review. The coding system was not described by Falvey et al. (2005), but inter-rater reliability was reported at .87. Participants' written responses are scored against the

experts' and are awarded one point for each matching element and charged one point for each omitted element. The authors reported an inter-rater reliability of .88. The structured follow-up interview contained 26 questions about how the participant arrived at the diagnosis and influences on treatment planning. Using all of these data, the authors concluded that three distinct problem-solving styles and three distinct clinical judgment strategies combined to form four distinct case conceptualization and treatment planning approaches used by the clinicians. The complex statistical analyses and the conclusions drawn by the authors are unsubstantiated by such a small sample size ($\underline{n} = 20$). Regardless of the appropriateness of the authors' conclusions, however, the study does provide an example of how the CTPS is used to assess counselor cognitions. The CTPS scores reflect counselor content knowledge of the symptomology and treatment practices for the single client issue presented, but have no apparent relationship with the counselor's level of cognitive complexity.

Ladany, Marotta, and Muse-Burke, 2001

Ladany, Marotta, and Muse-Burke (2001) studied the relationship between complexity of counselor case conceptualizations and supervisory style preference among 100 master's students. The authors stated four research questions: 1) Is the complexity of trainees' case conceptualization a function of their counseling experience? 2) are case conceptualizations of atypical issues less complex? 3) do trainees with less experience prefer supervisors who are more task oriented? And 4) do trainees with less complex case conceptualizations prefer more task oriented supervisors? Participants were given a written intake of a client and asked to write at least three sentences describing what they

believed to be the origins of the client's issue and an effective treatment plan for addressing the issue. Case conceptualization integrative complexity was measured using a social perception procedure developed by Suedfield, Tetlock, and Streufert (1992). Coders rated the students' responses based on four levels of integrative complexity: 1 = low *differentiation* and *integration*, 2 = moderate/high *differentiation* and low *integration*, 3 = moderate/high *differentiation* and moderate *integration*, 4 = high *differentiation* and high *integration*. Ladany et al. reported inter-rater reliability of 0.91 for etiology ratings and 0.80 for treatment ratings. Students also completed a demographic questionnaire and the Supervisory Styles Inventory (SSI; Friedlander & Ward, 1984). On the SSI, respondents indicate to what extent their supervisors are like each of 33 item descriptions using a 7 point likert scale. The items are grouped into three subscales, attractive, interpersonally sensitive, and task-oriented.

Ladany et al. (2001) reported that counseling experience was a significant predictor of case conceptualization integrative complexity. Previous studies did not find a significant relationship between experience level and cognitive complexity (e.g., Borders & Fong, 1989). Perhaps Ladany et al.'s usage of a counseling-specific measure of cognitive complexity allowed this effect to show. The results did not support the hypotheses that experience level and complexity of case conceptualization would predict preference for supervisory style. The authors cited limitations of the SSI and conflicting theories about supervisee preferences. Overall, the results of the study support the importance of cognitive tasks in counseling. The authors stated that future research is

needed to clarify the effect of cognitive complexity on counselor performance and preference for supervisory style.

The method (Social Perception Procedure; Suedfield, Tetlock, & Streufert, 1992) used by Ladany et al. (2001) to assess the complexity of student case conceptualizations merits closer inspection. The simplistic rating system is a major limitation. To provide valuable results on the differences between low and high complexity thinkers, a measure must include a sufficient range of possible scores. This scoring system only includes four options and the sample did not include respondents at a variety of levels (M (complexity) = 2.63, SD = .74). Even with the restricted possible score range (one to four), the inter-rater reliability for etiology was a relatively low .80, suggesting that the scoring protocol (which was not included) is imprecise or ambiguous. The authors gave one example of a scoring guideline. "A participant who listed only one factor related to the etiology of the client's problem would receive a score of one. Conversely, a participant who listed multiple factors, all of which were recognized as interrelated, would receive a score of four" (p. 206). Though there is a clear difference between participants at the two levels described, it is unclear how the subtle differences in the four score levels are determined. Because examples of student responses were not included, it is impossible to ascertain whether the scores were based on the complexity of the students' cognitive system or simply on the number of their responses. For example, a student who lists "overweight, rude, and lazy" as three factors of the client's depression would likely have a more simplistic cognitive system than one who lists "inconsistent support from family, insecurities about her body, and low interpersonal self-efficacy." Under the reported

scoring rules, these two respondents would earn the same score. These weaknesses in the scoring system could be improved upon in an adapted instrument. Clearly, these authors are closer to tapping into counselor cognitive complexity about clients than those who have used measures of general cognitive complexity, but more work is necessary to develop a specific measure with sufficient validity and reliability.

Summary of Studies of Counselor Cognitive Development using Specific Measures

In these three studies, researchers made an important shift in the cognitions targeted for assessment. Each study focused on assessing the complexity of case conceptualizations. Despite limitations in these assessment methods, the studies support the need for a method of assessing complexity of counselors' thoughts about their clients.

Summary

Upon review of this relevant literature, the need for a user-friendly, valid, reliable measure of counselor cognitive complexity is clear. Such a tool will permit research on counselor cognitive development. Interventions to facilitate cognitive development could be created, empirically tested, and integrated into curricular experiences in order to maximize counselor effectiveness and therefore client outcomes. The goals of this study are to further validate a new instrument, the Counselor Cognitions Questionnaire, as a measure of counselor cognitive complexity and explore factors that impact counselor cognitive development.

CHAPTER III

METHODOLOGY

In Chapters I and II, the rationale and literature basis for the study of counselor cognitive complexity were presented. The review of the literature supported the need for an instrument that measures the complexity of client-specific cognitions, suggesting that research in this area is warranted. In this chapter, the methodology for developing and validating such a measure is explained. Research questions and hypotheses are included. Participants and instrumentation are described, and data collection and statistical procedures are outlined.

Research Questions and Hypotheses

The present study seeks to explore the complexity of counselor cognitions about clients. The differences in client-specific cognitive complexity across levels of general cognitive development will be measured. Additionally, the impact of experience level on specific and general cognitive complexity will be explored. Specific cognitive complexity across counselor perception of effectiveness also will be measured. Finally, a regression analysis will be conducted using factors identified in past research on counselor cognitive development.

Research Question 1: Are counselors' scores on the Counselor Cognitions Questionnaire significantly different across Sentence Completion Test ego development levels?

Hypothesis 1a: There is not a statistically significant difference in CCQ scores across each SCT ego developmental level.

Research Question 2: Does duration of counseling experience predict scores on the measures of cognitive complexity?

Hypothesis 2a: Counseling experience will be a significant predictor of counselor cognitive complexity about clients as measured by the CCQ.

Hypothesis 2b: Counseling experience will not be a significant predictor of overall level of cognitive development as measured by the SCT.

Research Question 3: Do scores on the Counselor Cognitions Questionnaire vary significantly between clients with whom the counselor felt effective and ineffective?

Hypothesis 3a: Counselors' cognitive complexity about clients with whom they felt effective will be significantly higher than their cognitive complexity about clients with whom they felt less effective.

Research Question 4: What factors (i.e., SCT score, age, graduate training, paraprofessional work experience, and counseling experience) influence scores on the Counselor Cognitions Questionnaire?

Hypothesis 4a: SCT score, age, counseling experience, and paraprofessional work experience will significantly predict change in counselors' cognitive complexity about clients.

Participants

Participants are practicing counselors and counselors-in-training. The counselors-in-training are enrolled in CACREP accredited master's in counseling programs across

the country. The counselors are known colleagues of this investigator and are either enrolled in counseling doctoral programs or practicing counselors. A summary of demographic and categorical characteristics of the sample is provided in Chapter 4. The total number of participants in the sample meets the calculated target (i.e., using a power calculation, a sample size of 114 is needed to obtain 0.80 power at alpha < .05 [Lenth, 2001]).

Instrumentation

Participants completed two instruments and a brief informational questionnaire. The order of instruments will be as follows: CCQ, SCT, and Information Questionnaire. Below, the development and psychometric properties of each instrument are described.

Development of the Counselor Cognitions Questionnaire

The Counselor Cognitions Questionnaire (Welfare, 2006) is a measure of the complexity of a counselor's cognitions about her or his clients. It is based in Personal Construct Psychology (Crockett, 1965; Kelly, 1955) and models of counselor development (e.g., Blocher, 1983). Respondents describe two clients in a structured free response and forced choice format. Trained scorers (the principal investigator and a research assistant in this study) rate the responses per a specific scoring method. Total *differentiation* and *integration* scores are assigned to each respondent.

Development of the instrument was a multifaceted, multiphase task. The initial instrument was developed based on a review of counselor development and cognitive complexity literature. The strengths and weaknesses of existing instruments were studied. The scoring protocol also reflects findings in research on counselor cognitive

development and counseling expertise. This literature is summarized in Chapter II. The first draft of the CCQ was reviewed by a panel of seven counselors and counselor educators. The panel feedback resulted in a change to the client prompt (from "a client whom you found challenging" and "a client whom you did not find challenging" to "a client with whom you were effective" and "a client with whom you were less effective"). After revisions from that panel, the CCQ and scoring protocol was critiqued by a researcher experienced with cognitive complexity and an expert psychometrician. In order to develop administration guidelines, two students at differing levels of counseling experience completed the CCQ. Their verbal feedback about the clarity of the directions was positive. Their responses informed revisions in the scoring protocol. For example, originally all demographic and physical characteristics were excluded from the *differentiation* score, but upon review of their descriptions it became clear that some demographic and physical descriptors were important to the conceptualization (physically fit, biracial, divorced). As a result, only age and gender are excluded from the score. Basic differences between the novice and experienced counselor's responses were congruent with expectations.

Next, an initial pilot study was conducted to establish administration guidelines and hone the instrument directions and scoring protocol. A convenience sample of 17 students (10 master's and seven doctoral level) was conducted at one public university in the southeast United States. The students were all enrolled in counseling internship through their CACREP accredited graduate program. The assessment was administered during regularly scheduled group supervision (a total of five groups). One of the students

was male and 16 were female. Fourteen participants were Caucasian, two were Asian, and one was African-American. The participants ranged in age from 23 to 63, with a mean age of 29.11.

Consenting participants were given the CCQ and verbally instructed to "read the directions and spend a few minutes completing each section of the forms." Respondent behaviors and completion times were observed and noted by the administrator. Upon completion of all forms, the participants were invited to share their reactions. Open prompts were used by the administrator to facilitate discussion of the instrument (e.g., "What was it like to take these assessments?" and "Did you have adequate time to complete each section?")

Four of the five groups completed the CCQ within 15 minutes. Several respondents were observed to finish writing before 10 minutes had elapsed. One respondent required 20 minutes for completion of the instrument. It was noted that English appeared to be this respondent's second language. During administration, this respondent asked the administrator several questions about the directions. Perhaps the open nature of the writing task is particularly difficult for respondents with limited English proficiency to comprehend.

In the follow-up interview, respondents reported they had adequate time to complete the instrument. As such, the administration time of 15 minutes was established. They also reported the directions for the first part of the assessment were clear (listing characteristics) but they were unclear about what was meant by "category" in the second task. The written directions for this task were revised to improve clarity. Several

respondents noticed that they went back and added additional characteristics to the description of the first client while they worked on the description of the second client. No changes were made based on this observation. One respondent reported she had trouble thinking of "vocabulary words" to describe her clients. The other participants in her group unanimously agreed. The written directions were changed to "describe the client as fully as you can by writing *words or phrases* that explain their defining characteristics."

Upon review of the responses, additional revisions were made to the scoring protocol. It was very difficult for the rater to assign valence to the characteristics. Consequently, a column was added to the CCQ and respondents are now asked to indicate valence for each characteristic. Additionally, very few respondents mentioned the counseling relationship. The directions were changed from "Think about any attributes or characteristics they have which you might use to describe them to other people" to "Think about your interactions with them and any attributes or characteristics which you might use to describe them." This subtle change was intended to invite interactional descriptors. A final change was made to the interpretation of the "Importance" section. In theory, counselors with more complex cognitions about clients are able to sort and prioritize the characteristics; but, there was no apparent response pattern in the sample. Because of the rich fodder for discussion available in these responses, the section remains in the instrument. It is not, however, scored.

The Counselor Cognitions Questionnaire

The final version of the CCQ is a multi-format assessment (Welfare, 2006). Respondents list two clients, one client with whom they feel effective and one client with whom they feel less effective. After choosing two clients, the respondent is asked to describe each completely using words or phrases that explain the client's defining characteristics (e.g., engaged in treatment, scared, passive, addicted to alcohol, self-critical, resilient). The respondent also reports whether each characteristic is a positive or negative characteristic of the client (e.g., addicted to alcohol = negative characteristic) and assigns a Likert rating for the importance of the characteristic. In the second part of the assessment, the respondent is asked to review the characteristics listed and consider if any of them can be grouped into categories (e.g., "engaged in treatment" and "resilient" in the category "client strengths").

Raters use the detailed scoring protocol to assess cognitive complexity of each respondent. The rater training manual is self-instructional and includes practice exercises and response examples. Individuals who complete the self-instruction activities and achieve an inter-rater reliability of .90 are able to use the CCQ in research. In the pilot study (Welfare & Borders, 2006), the CCQ was scored by the principal investigator and a trained master's student. Their inter-rater reliability for *differentiation* was .99 and for *integration* was .95 (Pearson product moment correlation, r [*differentiation*] = .99, *sig* .00, r [*integration*] = .95, *sig* = .00). These two correlations suggest very high consistency between the two raters. Quantitative and qualitative review of the responses results in two scores for each respondent: cognitive *differentiation* and *integration*.

Differentiation is the number of available cognitive constructs in an individual's cognitive system about a domain, such as a client. *Differentiation* is scored by review of the characteristics listed in the first part of the CCQ (CCQ Scoring Manual; Welfare, 2006). Any characteristic that describes a unique client belief, mannerism, quality, trait, tendency, behavior, thought, feeling, motivation, fear, or concern earns one point. Simplistic demographic information (e.g., female, age 36) does not count toward the score. Additionally, characteristics that describe two constructs in a single response earn two points (e.g., "Rude and obnoxious"). Characteristics that are written as a phrase or have an adverb or adjective qualifier are scored as one point (e.g., "devoted mother" or "resistant to therapy"). The total number of characteristics for the two clients is tallied. Each unique characteristic listed earns one point (i.e., if the characteristic "angry" appears in the descriptions of both clients, the respondent only earns one point). This total score is the respondent's *differentiation* score. This scoring procedure is derived from the Role Category Questionnaire (RCQ; Crockett, 1965). The RCQ has been used for over 40 years to assess interpersonal construct *differentiation*. As described in Chapter 2, extensive evidence of validity and reliability for the RCQ is available. The CCQ borrows that psychometrically stable assessment method and applies it to a new stimulus (i.e., clients rather than peers). To address Research Question 3, the *differentiation* scores will be calculated per client rather than the overall total.

Integration is scored by qualitative review of the characteristics listed in part one and qualitative and quantitative review of part two of the CCQ. Respondents earn points based on the balance of positive and negative characteristics included, the types of

characteristics listed (e.g., Cognitive, Spiritual/Values, Emotional and Behavioral), and inclusion of characteristics about the counseling relationship itself. The types of characteristics included are based in the work of Duck (1973). Duck purported that there are three types of constructs used to describe peers: "psychological," "role," and "other." For the CCQ, the category "psychological" was broken down into cognitive and emotional characteristics. The category "role" was renamed behavioral to be more inclusive. The category of Spiritual/Values was added because of its particular relevance to describing clients. Next, the raters use qualitative and quantitative methods to review the categories listed by respondents in the second part of the CCQ. One point is given for each unique category listed (e.g., "client strengths"; if listed as a category for both clients, only earns one point). Additional points are given for inclusion of a category that indicates meta-cognition (e.g., "resilient," "willing to try again," and "repeatedly victimized" in the category "things that perplex me about the client") and inclusion of a category about the counseling relationship (e.g., characteristics that "push my buttons"). The sum score represents the respondent's level of *integration*. Again, to address Research Question 3, a per client *integration* score will be calculated. Additional scoring details are available in the CCQ Scoring Manual (Welfare, 2006).

The *differentiation* and *integration* scores represent two distinct and very important aspects of cognitive complexity. Preliminary data in Welfare and Borders (2006) reveals a moderate positive correlation between *differentiation* and *integration* scores (Pearson product moment correlation; $r = .48$, sig. = .005, $n = 33$). This significant correlation suggests the two indices of cognitive complexity are related, but

not sufficiently explained by one score alone. As such, the scores are reported separately. They are not scaled such that they can be compared to each other (e.g., a score of 15 on *differentiation* is not necessarily "higher" than a score of 12 on *integration*). No normative information is available at this time; however, basic interpretations can be made based on preliminary data. *Differentiation* scores theoretically can range from 0 to 75, but previous samples yield a range of 5-50. A score of 10 or below represents very low construct *differentiation*. Counselors who score in this range have few constructs with which they can describe clients. To date, most counselors-in-training have scored between 10 and 20. A score of 25 or above is indicative of a complex cognitive system. *Integration* scores theoretically can range from 0 to more than 30. A high score indicates that the counselor has a complex system of connections among their constructs, while a low score indicates the counselor has a low level of complexity among the constructs. To date, most counselors-in-training have scored below 10. Most advanced doctoral students and practicing counselors have scored in the range of 12-18.

As described in Chapter 2, the RCQ, a similar measure based in description of peers, has been used as a measure of counselor cognitive complexity. The results of the preliminary study provide evidence of discriminant validity that complexity of cognitions about peers is not necessarily representative of complexity of cognitions about clients. The Pearson product moment correlation between the CCQ *differentiation* total and RCQ *differentiation* total is insignificant ($r = .22$, $sig = .23$). This suggests RCQ *differentiation* scores have no significant relationship to CCQ *differentiation* scores.

The CCQ is designed for use with counselors in any track or setting. Because the respondent provides the client stimulus, the instrument is very versatile. Welfare and Borders (2006) conducted univariate analyses of variance on CCQ *differentiation* total and CCQ *integration* total scores across counseling track (e.g., community, school, couple and family, student development, and gerontological). No significant mean differences were found (F [*differentiation*] = .25, *sig* .91, F [*integration*] = .09, *sig* = .98). This non-significant finding suggests that there is no evidence in this sample that the CCQ favors one counseling setting over another.

The Washington University Sentence Completion Test

The Washington University Sentence Completion Test (Hy & Loevinger, 1996; Loevinger, 1998, 1976; Loevinger & Wessler, 1970) is a measure of ego developmental level. As described in Chapter 2, ego development includes cognitive development as well as moral, character, and self development. The full-length SCT includes 36 sentence stems. Respondents are asked to complete each sentence stem. Trained scorers rate each response using a specific scoring method (detailed below). Stage level is assigned based on qualitative review of participant responses to 36 sentence stems. The SCT includes eight ego developmental stages: E2: Impulsive, E3: Self-Protective, E4: Conformist, E5: Self-Aware, E6: Conscientious, E7: Individualistic, E8: Autonomous, and E9: Integrated.

SCT scoring guidelines are described in multiple sources (Hy & Loevinger, 1996; Loevinger, 1998, 1976; Loevinger & Wessler, 1970). An updated and highly detailed training and scoring protocol is available in Hy and Loevinger (1996). The manual is self-instructional and includes numerous practice exercises and sample responses.

Scorers are instructed to immerse themselves in each item in preparation for scoring. After thorough study of the item, the sample exercises for that item should be completed. When all items have been studied and practiced, the process of assigning an overall (or Total Protocol Rating) should be studied. Sample items are included to practice this part of the scoring procedure as well.

Hy and Loevinger (1996) recommended the following procedure for scoring a group sample of SCT assessments. After collection of all data, the responses are compiled for assessment. All responses to a given item are rated at the same time. That is, all responses to stem number 1 are scored, followed by all responses to stem number 2, and stem number 3, etc. This scoring method allows for greater acuity in assigning scores. Rater objectivity is maintained since each response is scored as an individual unit, not in mass with the individual's other responses.

Item scores are assigned by matching the response to the appropriate category and level per descriptions in the manual. For example, consider the sentence stem "A man feels good when…". Hy and Loevinger (1996) described four themes that typically emerge in the responses: gratification, accomplishments, relationships, and identity. Each theme is called a category. Responses in each of these categories can be found at various E levels. The scorer is instructed to first consider which category the response addresses. For example, the response "is working" to the stem above would be in the category accomplishments. After identifying the category, the scorer compares the responses to examples of accomplishment responses at different E levels. The closest match is recorded as the item score. In this example, responses in the accomplishment

category at the E3 level include “he has money,” “he gets a job,” “he gets paid,” and “he gets a raise.” The response “is working” matches these examples in category and in structure, therefore the level of E3 is assigned.

Sometimes the response does not exactly match the categories listed. In this case, three options are suggested. Some responses may address more than one category or idea. The authors suggested that the combination of two or more categories in a compound response suggests a more complex level of conception; therefore, the item is to be rated one step higher than the highest single element. When the combination of ideas in a compound response does not generate a higher level of conceptual complexity, it is rated in the less frequent category or rated in the higher category. In the case of a meaningful response where there is no appropriate category, the general theory is used to arrive at a rating. The general theory behind the scoring protocol is included in the manual. The authors stated that relying solely on general theory should be used as a last resort because of the increased influence of the personal biases of the scorer. A final exception is when the response is omitted or is too fragmentary to be meaningful; it is rated E4 by default. Each item is explained in a chapter in the manual and examples of responses at each E Level are included.

Only when all items for all respondents have been assigned a rating does the scorer consider the individual’s scores as a unit. Per the scoring protocol, scorers read each SCT all the way through and write down an impressionistic E level. Then, they sum the scores (e.g., E3 equals 3 points, E6 equals 6 points) for all items and compare with the sum score ranges for each E level. They then compare the quantitative score with the

impressionistic score. When the two scores match, they record the E level and move on to the next respondent. When the scores do not match, they check for clerical errors and reevaluate the ratings as needed. Total Protocol Ratings (TPRs) are assigned to each respondent using this method.

The SCT has strong evidence of psychometric stability. Trained raters have inter-rater reliabilities that exceed .90 (e.g., In a study of 229 adult subjects, Novy (1993) reported an inter-rater reliability of .94 for the 36-item score). Internal consistency reliability, measured using coefficient alpha, is .84, .81, and .90 for the first half, second half, and full-length 36-item forms, respectively (Loevinger, 1998). Despite the slight decrease in reliability, the two half tests are comparable with the 36-item form (Novy, 1993). Loevinger (1998) suggested that, when using an 18 item form, the purpose of the study should be considered when selecting items. For this study, 18 diverse and representative items were selected. This researcher and a researcher experienced with the SCT and ego developmental theory selected the items that seemed specifically appropriate for use in a study of counselors. Items were chosen to address family and peer relationships, ideas about education and career, beliefs about values and rules, helping behaviors, likes and dislikes, and self-concept. A balance of items about males and females were included. The psychometric properties also were considered. Loevinger (1998) reported the item to TPR correlations for each of the 36 sentence stems. Eight items with very high correlations were chosen for inclusion. These eight items are both content relevant and psychometrically strong.

Information Questionnaire

Two forms of demographic questionnaires will be used in this study. One form will be used with master's students, while the second form will be used with doctoral students and practitioners. The questionnaire was designed by this researcher to collect demographic information, data about counseling related experiences, and information about the respondents' relationship with the clients whom they describe on the CCQ.

Procedures

For this study, a convenience sample of counseling students was recruited by contacting professors who teach master's and doctoral level counseling students at counselor-education programs across the country. These professors were contacted via email by the principal investigator. The purpose, goals, and procedures of the study were explained, and the professors were asked to invite their students to participate in the study during a regularly scheduled class. Administration required less than 30 minutes.

Practitioners were recruited through phone, email, and in person contact by this researcher. With those who agree to participate, a 30 minute administration session was scheduled. The assessments were administered in individual or group sessions as the schedule permitted. Some practitioners completed the assessments individually without an administrator present.

Completed questionnaires were collected by the administrator at the end of each administration period. Proxy administrators mailed the completed questionnaires to this researcher via the United States Postal Service. The data was compiled and scored in

groups of 20 respondents. Statistical analyses were conducted when all administrations and scoring was complete.

Data Analysis

Each research question provides additional psychometric information about the CCQ. Evidence of validity and reliability will be explored. Descriptive statistics were calculated using the Statistical Package for the Social Sciences (SPSS; Release 14.0.0, 2005) to provide a profile of the sample. Inter-rater reliabilities for the CCQ and the SCT was calculated using a Pearson product moment correlation. The normality of each distribution was assessed using a histogram. ANOVAs were used to analyze variance in CCQ scores across levels of SCT and perceived effectiveness. Significance and effect size for each ANOVA is reported. Separate linear regression analyses were used to estimate the predictive ability of experience on CCQ score and SCT score. This method of data analysis was chosen to enable direct comparison of these results to past studies of the effect of experience on cognitive complexity. A multiple regression analysis was performed to explore the influence of SCT score, age, degree status, counseling experience, and paraprofessional counseling experience on client-specific cognitive complexity. Additional factors such as counselor education and supervision experiences were included, based on post hoc analysis.

Table 3
Research Questions

Research Question 1: Are counselors' scores on the Counselor Cognitions Questionnaire significantly different across Sentence Completion Test ego development levels?		
Hypothesis	**Variables**	**Analysis**
Hypothesis 1a: There is not statistically significant mean difference among CCQ differentiation and integration scores across each SCT score level.	Counselor Cognitive Complexity (differentiation and integration) as measured by the CCQ (Dependent Variable, Interval level data) Counselor level of general cognitive development as measured by the SCT (Independent Variable, Ordinal level data)	ANOVA Effect Size Power
Research Question 2: Does duration of counseling experience predict scores on the measures of cognitive complexity?		
Hypothesis	**Variables**	**Analysis**
Hypothesis 2a: Counseling experience will be a significant predictor of counselor cognitive complexity (differentiation and integration) about clients as measured by the CCQ.	Counselor Cognitive Complexity (differentiation and integration) as measured by the CCQ (Dependent Variable, Interval level data) Counseling experience as measured by respondent self-report on the Information Questionnaire (Predictor Variable, Interval level data)	Linear Regression
Hypothesis 2b*:* Counseling experience will not be a significant predictor of overall level of cognitive development as measured by the SCT.	Counselor level of general cognitive development as measured by the SCT (Dependent Variable, Ordinal level data) Counseling experience as measured by respondent self-report on the Information Questionnaire (Predictor Variable, Interval level data)	Linear Regression
Research Question 3: Do scores on the Counselor Cognitions Questionnaire vary significantly between clients with whom the counselor felt effective and ineffective?		
Hypothesis	**Variables**	**Analysis**
Hypothesis 3a: Counselors' mean cognitive complexity about clients with whom they felt effective will be significantly higher than mean cognitive complexity about clients with whom they felt less effective.	Counselor Cognitive Complexity (differentiation and integration) as measured by the CCQ (Dependent Variable, Interval level data) Perceived effectiveness as indicated by Respondents on the CCQ (Independent Variable, Dichotomous nominal level data)	ANOVA Effect Size Power

Research Question 4: What factors (i.e., SCT score, age, counseling experience, and paraprofessional work experience) influence scores on the Counselor Cognitions Questionnaire?		
Hypothesis	**Variables**	**Analysis**
Hypothesis 4a: SCT score, age, counseling experience, and paraprofessional work experience will significantly predict change in counselors' cognitive complexity about clients.	Counselor Cognitive Complexity (differentiation and integration) as measured by the CCQ (Dependent Variable, Interval level data) Counselor level of general cognitive development as measured by the SCT (Predictor Variable, Ordinal level data) Age in years as reported on the Information Questionnaire (Predictor Variable, Interval level data) Highest counseling degree completed is a categorical variable assessed by respondent self-report (Predictor Variable, Ordinal level data) Counseling experience as measured by respondent self-report on the Information Questionnaire (Predictor Variable, Interval level data) Paraprofessional counseling experience as measured by respondent self-report on the Information Questionnaire (Predictor Variable, Interval level data)	Multiple Regression

CHAPTER IV

RESULTS

In this chapter the results of the study are presented using descriptive and inferential statistics. First, the characteristics of the sample are described. Second, the psychometric information for each instrument is reported. Finally, the analyses to test for each research hypothesis are described.

Sample Characteristics

Both counselors (n = 36) and counselors-in-training (n = 77) participated in the study. The counselors-in-training were enrolled in one of seven CACREP accredited degree programs across the country. The universities varied in size and public/private status. The counselors were known colleagues of this investigator and were either working in counseling positions (n = 21) or enrolled in counseling doctoral programs (n = 15). Participants ranged in age from 22 to 59 (m = 30.58, sd = 8.35). In addition, all counseling specializations were represented in the sample. A summary of demographic and categorical characteristics of the sample was provided in the tables (4 – 7) below. In general, this sample is representative of the population of interest therefore the results are cautiously generalizable to counselors and counselors-in-training.

Table 4
Sample Characteristics

Continuous Variables	N	Minimum	Maximum	Mean	*sd*
Age (in Years)	113	22	59	30.58	8.35
Paraprofessional Counseling-Related Experience (in Years)	109	0	15.00	1.54	2.18
Professional Counseling Experience (in Years)	111	0	27.00	2.01	4.23
Supervisory Experience (in Years)	113	0	13.00	.30	1.34
Counselor Education Experience (in Years)	113	0	15.00	.50	2.12

Table 5
Race/Ethnicity of All Participants by Highest Counseling Degree Completed

		Highest Counseling Degree Completed				Total
		Master's in Progress	Master's Completed	EdS Completed	Doctorate Completed	
Ethnicity	White	63	16	11	2	92
	Black or African American	9	3	0	0	12
	American Indian or Alaska Native	1	0	0	1	2
	Asian	1	1	0	0	2
	Native Hawaiian or Other Pacific	0	1	0	0	1
	Hispanic or Latino	2	0	1	0	3
	Other	1	0	0	0	1
Total		77	21	12	3	113

Table 6
Counseling Specializations of Participants

Counseling Specialization	Frequency	Percent of Sample
Community or Mental Health	41	35.7
School	49	42.6
Marriage/Couple and Family	8	7.0
Gerontological	1	.9
Student Development/Student Affairs/College Counseling	6	5.2
Other	7	6.1
Total	112	100.0

Table 7
Highest Counseling Degree Completed by Sex

Highest Counseling Degree	Sex		Total
	Male	Female	
Master's Degree in Progress	8	69	77
Master's Degree Completed	3	18	21
Educational Specialist Degree Completed	2	10	12
Doctoral Degree Completed	1	2	3
Total	14	99	113

Table 8
Race/Ethnicity by Sex

Race/Ethnicity	Sex		Total
	Male	Female	
White	9	83	92
Black or African American	2	10	12
American Indian or Alaska Native	0	2	2
Asian	0	2	2
Native Hawaiian or Other Pacific	1	0	1
Hispanic or Latino	2	1	3
Other	0	1	1
Total	14	99	113

Instrument Psychometrics

Responses on the CCQ were scored by two trained raters. CCQ Differentiation scores ranged from 6 to 72. CCQ Integration scores ranged from 2 to 22. Descriptive statistics of the CCQ scores are reported in Tables 9. The moderate positive correlation between differentiation and integration scores was .69. The inter-rater reliability for CCQ Differentiation (Pearson's *r*) was .99. This indicates a high degree of agreement between the raters' scores. The inter-rater reliability for CCQ Integration (also measured by Pearson's *r*) was .96, indicating a high degree of consistency in rater scores. These results are presented in Table 10.

Table 9
CCQ Scores by Highest Counseling Degree Completed

Highest Counseling Degree		Mean	N	Standard Deviation
Master's Degree in Progress	CCQ Differentiation	18.93	76	8.36
	CCQ Integration	9.04	77	3.53
Master's Degree Completed	CCQ Differentiation	27.19	21	10.41
	CCQ Integration	10.81	21	2.93
Educational Specialist Degree Completed	CCQ Differentiation	24.50	12	7.33
	CCQ Integration	12.08	12	3.53
Doctoral Degree Completed	CCQ Differentiation	41.33	3	18.33
	CCQ Integration	18.33	3	4.04
Total	CCQ Differentiation	21.68	112	10.35
	CCQ Integration	9.94	113	3.82

Table 10
CCQ Inter-rater Reliabilities

		CCQ Differentiation Rater 1	CCQ Integration Rater 1	CCQ Differentiation Rater 2	CCQ Integration Rater 2
CCQ Differentiation Rater 1	Pearson Correlation	1	.65(**)	.99(**)	.68(**)
CCQ Integration Rater 1	Pearson Correlation		1	.65(**)	.96(**)
CCQ Differentiation Rater 2	Pearson Correlation			1	.68(**)
CCQ Integration Rater 2	Pearson Correlation				1

** Correlation is significant at the 0.01 level (2-tailed).
n = 113

The CCQ is designed for use with counselors in any specialization. The ANOVA reveals that there are no significant differences in CCQ Differentiation score across counseling specialization after partialing out the impact of highest counseling degree completed ($F = .61$, *sig* = .67). There are significant differences in CCQ Integration score across counseling specialization ($F = 2.59$, *sig* = .04). Due to the small numbers of respondents in some specialization it is unclear why these differences occurred.

Table 11
ANOVA: CCQ Differentiation Score Across Counseling Specialization

Source	Type III Sum of Squares	*df*	Mean Square	*F*	*Sig.*	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	2081.95	5	416.39	4.50	.00	.18	22.52	.97
Intercept	16454.57	1	16454.57	177.97	.00	.63	177.97	1.000
Highest Counseling Degree Completed	1485.30	1	1485.30	16.07	.00	.13	16.07	.98
Counseling Specialization	225.90	4	56.48	**.61**	**.67**	.02	2.44	.20
Error	9800.48	106	92.46					
Total	64518.00	112						
Corrected Total	11882.43	111						

a Computed using alpha = .05
b R Squared = .18 (Adjusted R Squared = .14)

Table 12
ANOVA: CCQ Integration Score Across Counseling Specialization

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power(a)
Corrected Model	393.92	5	78.78	7.32	.00	.26	36.60	.99
Intercept	3457.39	1	3457.39	321.19	.00	.75	321.19	1.00
Highest Counseling Degree Completed	222.93	1	222.93	20.71	.00	.16	20.71	.99
Counseling Specialization	111.55	4	27.89	**2.59**	**.04**	.09	10.36	.71
Error	1141.00	106	10.76					
Total	12795.00	112						
Corrected Total	1534.92	111						

a Computed using alpha = .05
b R Squared = .26 (Adjusted R Squared = .22)

The SCT also was scored by two trained raters. Frequencies of scores at each ego level are reported in Table 13 and descriptive statistics for SCT score at each degree level are reported in Table 14. Each sentence stem is assigned an ego level rating. Overall ego level was assigned using the sum scoring rules (summing the individual stem scores and assigning a overall ego level based on the sum score) as recommended by the author (Loevinger, 1998). The sum scoring rules may result in different ego levels than the ogive scoring rules. In this sample, the inter-rater reliability for SCT scores was .86 (Pearson's *r*). This reliability indicates high inter-rater consistency.

Table 13
General Cognitive Complexity Scores

Ego Developmental Level	N	Percent
E4: Conformist	8	7
E5: Self-Aware	26	22.8
E6: Conscientious	62	54.4
E7: Individualistic	15	13.2
E8: Autonomous	3	2.6
Total	113	100

Table 14
SCT Score by Highest Counseling Degree Completed

Highest Counseling Degree	SCT Score					Total
	E4	E5	E6	E7	E8	
Master's Degree in Progress	7	18	45	6	1	77
Master's Degree Completed	0	5	8	6	2	21
Educational Specialist Degree Completed	0	3	7	2	0	12
Doctoral Degree Completed	0	0	2	1	0	3
Total	7	26	62	15	3	113

Research Hypotheses

The results of analyses to test the following research questions are reported below.

1. Do counselors' scores on the Counselor Cognitions Questionnaire vary within Sentence Completion Test (SCT) ego development levels?
2. Does duration of counseling experience predict scores on the measures of cognitive complexity (Counselor Cognitions Questionnaire and Sentence Completion Test)?
3. Do scores on the Counselor Cognitions Questionnaire vary significantly between clients with whom the counselor felt effective and ineffective?

4. What factors (i.e., SCT score, age, degree status, paraprofessional work experience, and counseling experience) influence scores on the Counselor Cognitions Questionnaire?

Research Question 1

The first research question explored differences in complexity of cognitions about a client within levels of general cognitive complexity. Table 15 and Table 16 summarize the mean CCQ scores at each level of SCT score.

Table 15
CCQ Differentiation Score by SCT Score Level

SCT Score		Mean	N	Standard Deviation
E4: Conformist	CCQ Differentiation	17.63	8	8.12
E5: Self-Aware	CCQ Differentiation	21.92	26	9.31
E6: Conscientious	CCQ Differentiation	21.20	61	10.71
E7: Individualistic	CCQ Differentiation	24.60	15	10.48
E8: Autonomous	CCQ Differentiation	29.33	3	15.95
Total	**CCQ Differentiation**	**21.78**	**113**	**10.36**

Table 16
CCQ Integration Score by SCT Level

SCT Score	N	Mean CCQ Integration Score	Standard Deviation
E4: Conformist	8	7.13	2.85
E5: Self-Aware	26	10.04	3.77
E6: Conscientious	62	9.74	3.94
E7: Individualistic	15	12.00	2.95
E8: Autonomous	3	9.67	3.79
Total	**114**	**9.92**	**3.81**

Since cognitive complexity is domain specific, it was expected that client specific complexity (CCQ scores) would vary within each level of general cognitive complexity, resulting in an insignificant ANOVA (Figure 1 and Figure 2). As predicted, the CCQ Differentiation score within each SCT level varied enough that the ANOVA was insignificant (F = 1.19, *sig* = .32, see Table 17). Similarly, CCQ Integration score varied within SCT score level and did not vary significantly between levels (F = 1.99, *sig* = .10, see Table 17). A post-hoc analysis revealed only one significant pair-wise difference: CCQ Integration score between E4 Conformist and E7 Individualistic (Table 18). The insignificant ANOVAs indicate that complexity of cognitions about clients can vary within each general complexity level.

Figure 1

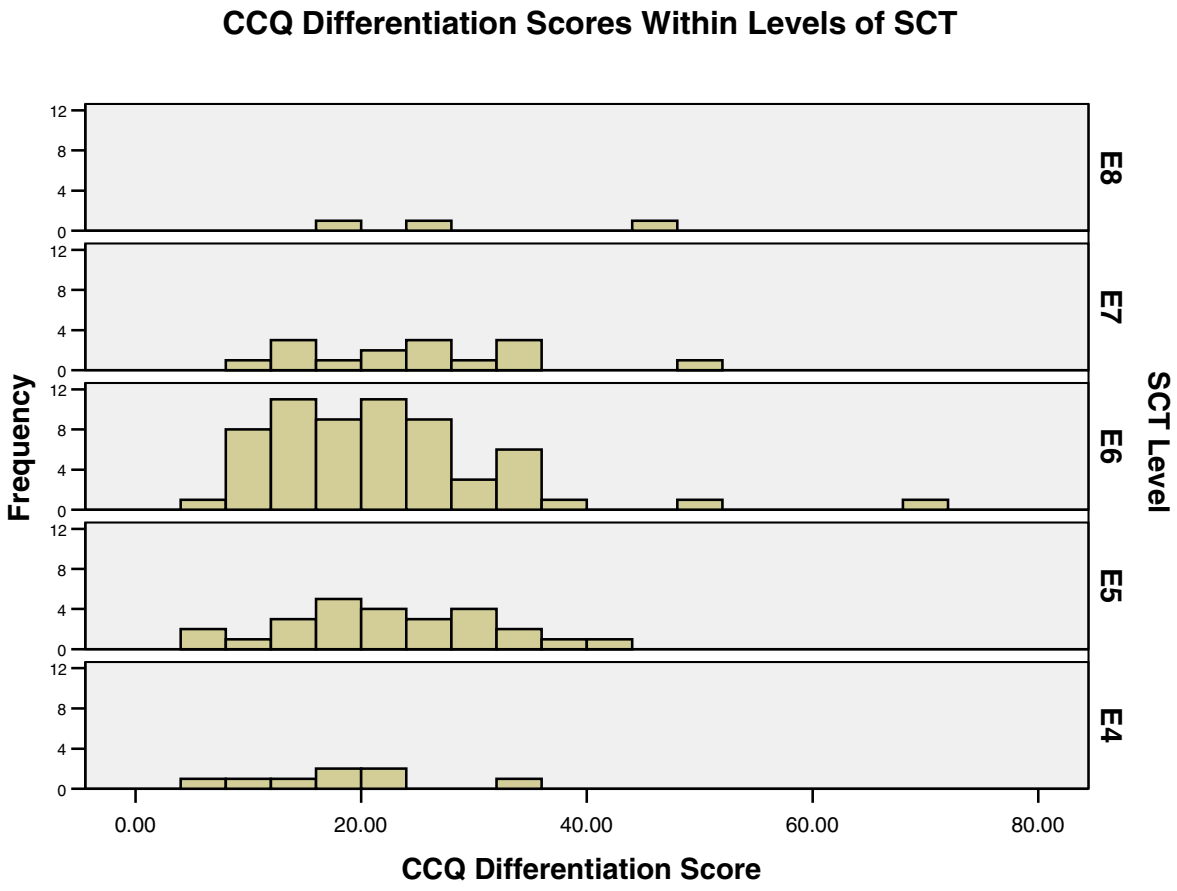
CCQ Differentiation Scores Within Levels of SCT
Frequency
SCT Level
E8
E7
E6
E5
E4
0
4
8
12
0.00
20.00
40.00
60.00
80.00
CCQ Differentiation Score

Figure 2

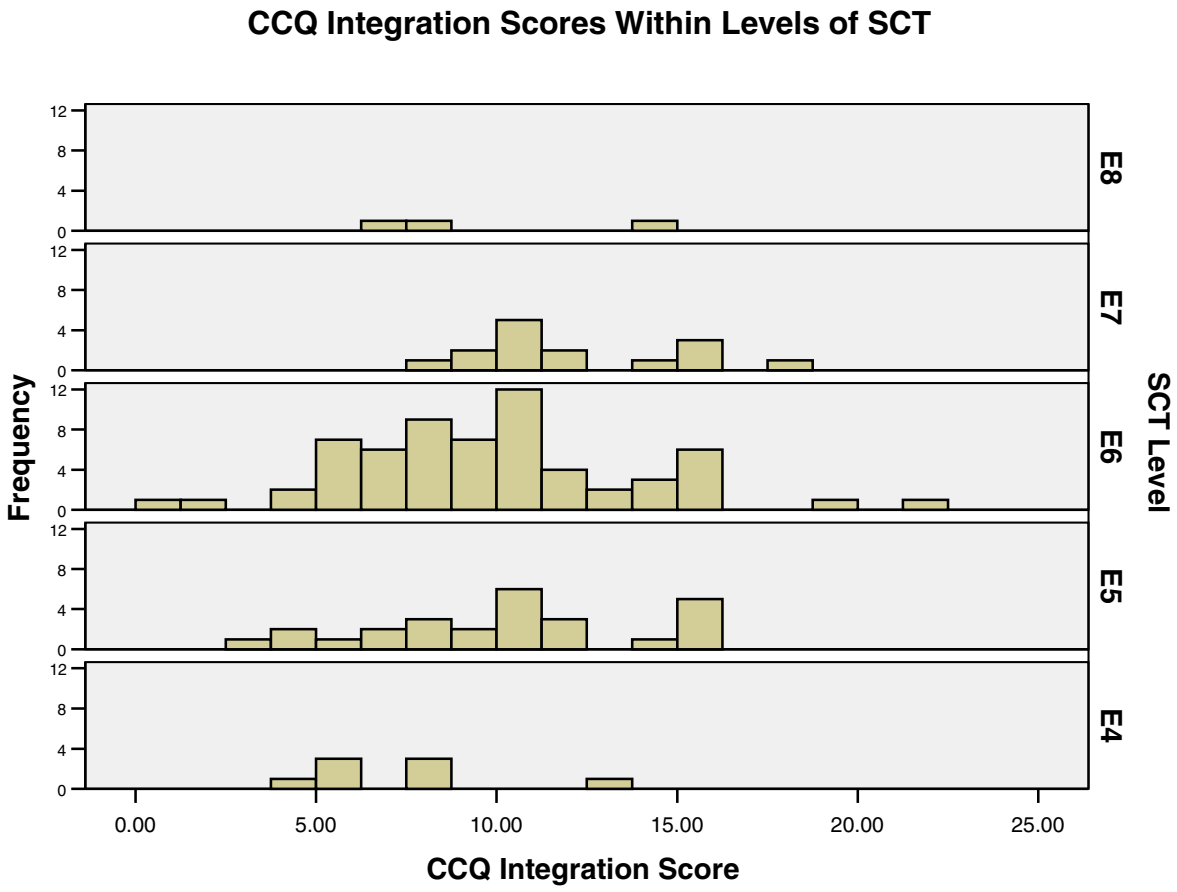

Table 17
ANOVA CCQ Scores Across SCT Levels

		Sum of Squares	*df*	Mean Square	*F*
CCQ Differentiation	Between Groups	449.84	4	112.46	1.05*
	Within Groups	11559.63	108	107.03	
	Total	12009.47	112		
CCQ Integration	Between Groups	129.92	4	32.48	2.35*
	Within Groups	1508.37	109	13.84	
	Total	1638.29	113		

*p<.05.

Table 18
Post-Hoc Tukey's Analyses

Dependent Variable	(I) SCT Score	(J) SCT Score	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
CCQ Differentiation	E4	E5	-4.29	4.18	.84	-15.90	7.30
		E6	-3.57	3.89	.89	-14.36	7.22
		E7	-6.97	4.52	.54	-19.54	5.59
		E8	-11.70	7.00	.46	-31.14	7.72
	E5	E4	4.29	4.18	.84	-7.31	15.90
		E6	.72	2.42	.99	-5.99	7.44
		E7	-2.67	3.35	.93	-11.98	6.62
		E8	-7.41	6.30	.77	-24.91	10.09
	E6	E4	3.57	3.89	.89	-7.22	14.38
		E5	-.72	2.42	.99	-7.44	5.99
		E7	-3.40	2.98	.78	-11.67	4.86
		E8	-8.13	6.11	.67	-25.11	8.83
	E7	E4	6.97	4.52	.54	-5.59	19.54
		E5	2.67	3.35	.93	-6.62	11.98
		E6	3.40	2.98	.78	-4.86	11.67
		E8	-4.73	6.54	.95	-22.88	13.42
	E8	E4	11.70	7.00	.46	-7.72	31.14
		E5	7.41	6.30	.77	-10.09	24.91
		E6	8.13	6.11	.67	-8.83	25.11
		E7	4.73	6.54	.95	-13.42	22.88
CCQ Integration	E4	E5	-2.91	1.50	.30	-7.08	1.25
		E6	-2.61	1.39	.34	-6.49	1.25
		E7	-4.87	**1.62**	**.03**	-9.39	-.35
		E8	-2.54	2.51	.85	-9.52	4.44
	E5	E4	2.91	1.50	.30	-1.25	7.08
		E6	.29	.86	.99	-2.11	2.70
		E7	-1.96	1.20	.48	-5.30	1.38
		E8	.37	2.26	1.00	-5.92	6.66
	E6	E4	2.61	1.39	.34	-1.25	6.49
		E5	-.29	.86	.99	-2.70	2.11
		E7	-2.25	1.07	.22	-5.22	.71
		E8	.07	2.19	1.00	-6.02	6.17
	E7	E4	4.87	**1.62**	**.03**	.35	9.39
		E5	1.96	1.20	.48	-1.38	5.30
		E6	2.25	1.07	.22	-.71	5.22
		E8	2.33	2.35	.86	-4.19	8.85
	E8	E4	2.54	2.51	.85	-4.44	9.52

		E5	-.37	2.26	1.00	-6.66	5.92
		E6	-.07	2.19	1.00	-6.17	6.02
		E7	-2.33	2.35	.86	-8.85	4.19

* The mean difference is significant at the .05 level.

Research Question 2

The second research question explored the impact of duration of counseling experience on cognitive complexity. Two hypotheses were suggested. First, it was thought that duration of counseling experience would be a significant predictor of client-specific cognitive complexity (as measured by CCQ). Second, it was thought that duration of counseling experience would not be a significant predictor of general cognitive complexity (as measured by the SCT).

As predicted, duration of counseling experience was a significant predictor of client-specific cognitive complexity (R^2 [CCQ Differentiation] = .20, F = 27.87, *sig* = .00 and R^2 [CCQ Integration] = .05, F = 6.56, *sig* = .01). Duration of counseling experience predicted 20% of the variance in respondent CCQ Differentiation score and 5% of the variance in CCQ Integration score.

Table 19
Variance Explained: Counseling Experience and CCQ Differentiation

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.45	.21	.20	9.30

a Predictors: (Constant), Duration of Counseling Experience

Table 20
ANOVA: Counseling Experience and CCQ Differentiation

Model		Sum of Squares	*df*	Mean Square	*F*
1	Regression	2414.67	1	2414.47	27.93*
	Residual	9336.48	108	86.45	
	Total	750.87	109		

a Predictors: (Constant), Duration of Counseling Experience
b Dependent Variable: CCQ Differentiation Score
*p<.01.

Table 21
Variance Explained: Counseling Experience and CCQ Integration

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.24	.06	.05	3.72

a Predictors: (Constant), Duration of Counseling Experience

Table 22
ANOVA: Counseling Experience and CCQ Integration

Model		Sum of Squares	*df*	Mean Square	*F*
1	Regression	93.03	1	93.03	6.71*
	Residual	1512.07	109	13.87	
	Total	1605.10	110		

a Predictors: (Constant), Duration of Counseling Experience
b Dependent Variable: CCQ Integration Score
*p<.01.

Surprisingly, duration of counseling experience did have a significant effect on general cognitive complexity (R^2 [SCT Score] = .03, F = 4.52, *sig* = .04). However, as shown in Table 23 below, experience predicted a mere 3% of the variance in general complexity. Counseling is the kind of experience that can stimulate cognitive growth (Fong, et al, 1999).

Table 23
Variance Explained: Counseling Experience and SCT Score

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.19	.04	.03	.82

a Predictors: (Constant), Duration of Counseling Experience

Table 24
ANOVA: Counseling Experience and SCT Score

Model		Sum of Squares	*df*	Mean Square	*F*
1	Regression	2.83	1	2.83	4.20*
	Residual	73.56	109	.68	
	Total	76.40	110		

a Predictors: (Constant), Duration of Counseling Experience
b Dependent Variable: SCT Score
*p<.05.

Research Question 3

The third research question addressed the difference in the complexity of cognitions about clients with whom the counselor felt more and less effective. It was expected that cognitions (CCQ Differentiation and Integration Scores) about clients with whom the counselor felt effective would be more complex than the cognitions about clients with whom the counselor felt less effective. Using a paired samples t-test, the significance of the difference between complexities was calculated. CCQ Differentiation scores varied significantly across perceived effectiveness ($t = 4.65$, $sig = .00$). CCQ Integration scores did not vary significantly across perceived effectiveness ($t = 1.94$, $sig = .06$).

Table 25
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CCQ Differentiation More Effective	12.16	113	5.30	.50
	CCQ Differentiation Less Effective	10.83	113	6.05	.57
Pair 2	CCQ Integration More Effective	5.59	114	2.42	.23
	CCQ Integration Less Effective	5.35	114	2.37	.22

Table 26
Paired Samples Correlations

		N	Correlation
	CCQ Differentiation More Effective & CCQ Differentiation Less Effective	113	.87*
	CCQ Integration More Effective & CCQ Integration Less Effective	114	.85*

*p<.01

Table 27
Paired Samples *t*-test

		Paired Differences					*t*	*df*
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	CCQ Differentiation More Effective & CCQ Differentiation Less Effective	1.33	3.03	.29	.76	1.89	4.65*	112
Pair 2	CCQ Integration More Effective & CCQ Integration Less Effective	.24	1.31	.12	-.01	.48	1.94	113

*p<.01

Research Question 4

The final research question examined the impact of several theoretically relevant factors on complexity of counselor cognitions about clients. As a preliminary analysis correlation matrix of the dependent and independent variables was calculated. A correlation matrix reveals the relationships among the measures (Table 29). This matrix reveals significant relationships between the measures of cognitive complexity and the factors of interest.

Table 28
Pearson's *r* Correlation Matrix

	CCQ Diff	CCQ Int	SCT	Para Exp	Pro Exp	Age	Ses Eff	Ses Ineff	Supor	Teach	Degree
CCQ Diff	1	**.69****	.15	.00	**.45****	**.21***	**.50****	**.50****	**.51****	**.42****	**.40****
CCQ Int		1	**.20***	.09	**.24****	.02	**.34****	**.35****	**.40****	**.25****	**.43****
SCT			1	.16	**.19***	**.27****	.10	.07	.09	.15	**.20***
Para Exp				1	.05	.17	.09	.06	.10	.06	.02
Pro Exp					1	**.54****	**.66****	**.63****	**.67****	**.81****	**.53****
Age						1	**.33****	**.28****	**.27****	**.45****	**.23****
Ses Eff							1	**.95****	**.86****	**.60****	**.47****
Ses Ineff								1	**.87****	**.61****	**.40****
Supor									1	**.77****	**.44****
Teach										1	**.41****
Degree											1

*$p<.05$
**$p<.01$
n = 113
CCQ Diff = CCQ Differentiation Score
CCQ Int = CCQ Integration Score
SCT = SCT Level
Para Exp = Duration of paraprofessional counseling experience
Pro Exp = Duration of professional counseling experience
Age = Age
Ses Eff = number of sessions completed with client with whom you felt effective
Ses Ineff = number of sessions completed with client with whom you felt less effective
Supor = Duration of experience as a supervisor
Teach = Duration of experience teaching counseling related coursework
Degree = Highest Counseling Degree Completed

A linear regression analysis assessed the impact of general cognitive complexity (as measured by SCT score), age, degree status, paraprofessional work experience, and professional counseling experience on CCQ Differentiation and CCQ Integration scores. The model was found to be significant for both dependent variables (F [Differentiation] = 6.49, *sig* = .00 and F [Integration] = 5.64, *sig* = .00). These model predicted 21% of the

variance in CCQ Differentiation scores and 18% of the variance in CCQ Integration scores, however the coefficients reveal some of the factors included in this model were not significant (Tables 32 and 33).

Table 29
Variance Explained: CCQ Differentiation

Model	*R*	*R* Square	Adjusted *R* Square	Standard Error of the Estimate
1	.49	.24	.21	9.29

a Predictors: (Constant), Highest Counseling Degree Completed, Counseling Experience, Paraprofessional Experience, SCT Score, Age

Table 30
Model Significance: CCQ Differentiation

Model		Sum of Squares	*df*	Mean Square	*F*
1	Regression	2801.31	5	560.26	6.49*
	Residual	8714.25	101	28	
	Total	11515.55	106		

a Predictors: (Constant), Highest Counseling Degree Completed, Counseling Experience, Paraprofessional Experience, SCT Score, Age
b Dependent Variable: CCQ Differentiation
*p<.01

Table 31
Coefficients: CCQ Differentiation

Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	15.50	6.96		2.23*
	SCT	.99	1.14	.08	.87
	Age	-.08	.14	-.07	-.58
	Highest Degree Completed	2.48	1.36	.19	1.82
	Paraprofessional Experience	-.08	.42	-.02	-.19
	Counseling Experience	.91	.30	.38	3.09**

a Dependent Variable: CCQ Differentiation
*p<.05
**p<.01

Table 32
Variance Explained: CCQ Integration

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.46	.21	.17	3.52

a Predictors: (Constant), Highest Counseling Degree Completed Counseling Experience, Paraprofessional Experience, SCT Score, Age

Table 33
Model Significance: for CCQ Integration

Model		Sum of Squares	*df*	Mean Square	*F*
1	Regression	332.49	5	66.50	5.57*
	Residual	1263.76	102	12.39	
	Total	1596.25	107		

a Predictors: (Constant), Counseling Experience, Paraprofessional Experience, SCT Score, Age
b Dependent Variable: CCQ Integration
*p<.01

Table 34
Coefficients: CCQ Integration

Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	7.71	2.61		2.95**
	SCT	.56	.43	.122	1.31
	Age	-.08	.05	-.169	-1.53
	Highest Degree Completed	1.83	.52	.38	3.54**
	Paraprofessional Experience	.17	.16	.10	1.05
	Counseling Experience	.10	.11	.10	.87

a Dependent Variable: CCQ Integration
*p<.05
**p<.01

A post hoc analysis revealed that the combination of factors in the above analysis was not the most parsimonious model. A stepwise regression was performed including the four variables in the previous model and duration of experience as a counseling supervisor, and highest counseling degree. These two variables were selected for inclusion based on theoretical support for their importance in counselor cognitive development and high correlations as indicated on Table 29 above. For CCQ Differentiation the most parsimonious model included only two factors: Years of experience as a counseling supervisor (which accounted for 26% of the variance) and highest counseling degree completed (which accounted for an additional 3%). These two factors accounted for 29% of the variance (Adjusted R^2) in CCQ Differentiation Score (F = 22.38, *sig* = .00, see Table 37).

Table 35
CCQ Score Across Years of Supervisory Experience

Years of Supervisory Experience		CCQ Differentiation	CCQ Integration
.00	Mean	20.34	9.45
	N	98	99
	Std. Deviation	8.74	3.52
1.00	Mean	25.33	12.00
	N	6	6
	Std. Deviation	10.31	3.03
1.50	Mean	31.33	13.00
	N	3	3
	Std. Deviation	17.16	2.65
2.00	Mean	29.50	10.50
	N	2	2
	Std. Deviation	4.95	6.36
2.50	Mean	33.00	14.00
	N	1	1
	Std. Deviation	.	.
4.00	Mean	25.00	19.00
	N	1	1
	Std. Deviation	.	.
13.00	Mean	72.00	22.00
	N	1	1
	Std. Deviation	.	.
Total	Mean	21.68	9.94
	N	112	113
	Std. Deviation	10.34644	3.82025

Table 36
Parsimonious Model: CCQ Differentiation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.55	.30	.29	8.80

a. Predictors: (Constant), Years of Experience as a Supervisor, Highest Counseling Degree Completed

Table 37
ANOVA: Parsimonious Model CCQ Differentiation

Model		Sum of Squares	*df*	Mean Square	*F*
2	Regression	3464.33	2	1732.16	22.38*
	Residual	8051.23	104	77.42	
	Total	11515.55	106		

a. Predictors: (Constant), Years of Experience as a Supervisor, Highest Counseling Degree Completed
b. Dependent Variable: CCQ Differentiation
*$p<.01$

For CCQ Integration the most parsimonious model included three variables: Highest counseling degree completed (which predicted 17% of the variance explained by the model), years of experience as a counseling supervisor (which predicted 6% of the variance explained by the model), and years of experience as a counselor (which predicted 3% of the variance explained by the model). These three factors accounted for 26% of the variance in CCQ Integration score (Adjusted $R^2 = .26$, $F = 12.90$, $sig = .00$, see Table 37 and Table 38).

Table 38
Parsimonious Model: CCQ Integration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.53	.28	.26	3.24

a. Predictors: (Constant), Highest Counseling Degree Completed, Years of Experience as a Counseling Supervisor, Years of Experience as a Counselor

Table 39
ANOVA: Parsimonious Model CCQ Integration

Model		Sum of Squares	df	Mean Square	F
1	Regression	406.53	3	135.51	12.90*
	Residual	1060.86	101	10.50	
	Total	1467.39	104		

a. Predictors: (Constant), Highest Counseling Degree Completed, Years of Experience as a Counseling Supervisor, Years of Experience as a Counselor
b. Dependent Variable: CCQ Integration
*p<.01

CHAPTER V

CONCLUSIONS

Overview

In this chapter, implications of the findings of the study are described. Additionally, limitations of the study, implications for counseling, and suggestions for future research are included.

Discussion

The Counselor Cognitions Questionnaire

This study provides further evidence that the CCQ is a psychometrically stable measure of the complexity of cognitions about clients. As reported in Welfare and Borders (2006), the measure captures client conceptualizations that can be evaluated per the scoring manual to provide a reliable cognitive differentiation score and a reliable cognitive integration score.

One of the most important indices of reliability for an instrument with subjective scoring is inter-rater reliability. The high correlations between raters (r [Differentiation] = .99 and r [Integration] = .96) indicate the scoring manual (Welfare, 2006) can be implemented consistently. Because the scoring for Integration is more subjective than Differentiation, that correlation understandably is slightly lower, although the inter-rater reliability of .96 exceeds the suggested minimum and is comparable or better than reliabilities for other instruments designed to measure cognitive complexity. For

example, Novy (1993) reported a .94 inter-rater reliability for the Sentence Completion Test (Loevinger, 1970). Ladany et al. (2001) reported inter-rater reliabilities of .91 for etiology ratings and .80 for treatment ratings using the Conceptual/Integrative Complexity Method (Suedfeld et al., 1992). The CCQ, then, clearly exceeds the expected criteria for inter-rater reliability, providing evidence that the scoring protocol is adequately detailed and differences in cognitive complexity are discernable in respondents' answers.

The first finding in support of the validity of the CCQ is in the relationship between *differentiation* and *integration* scores. The moderate, positive correlation (r = .69) between CCQ *differentiation* and *integration* confirms the necessity of assessing both aspects of cognitive complexity. They are related but distinct components of cognitive complexity. Measures that only assess *differentiation* do not adequately represent the cognitive complexity of the respondent. The correlation between the scores is significant, and suggests that as *differentiation* increases, so does *integration*, but cognitive complexity cannot be fully described by either score alone.

Additional evidence of validity of the CCQ as a measure of counselor cognitive complexity can be found in the scores of subgroups of respondents. As expected, respondents who had completed a master's degree scored significantly higher, on average, than respondents who had not completed a master's degree, suggesting, in line with cognitive complexity theories (Crockett, 1965; Duys & Hedstrom, 2000), that additional training and experience enhances counselors' cognitions about their clients. Finding this expected group difference suggests that the CCQ does capture cognitions

relevant to counseling and the scoring protocol allows raters to discern among levels of complexity in the responses.

The CCQ was designed to use a respondent-provided client stimulus to increase its versatility for use with different types of counselors. In this sample, there were no significant mean differences in CCQ differentiation scores across counseling specialization (e.g., community/mental health, school, couple and family, gerontological, and student development/college counseling) after co-varying out the impact of highest counseling degree completed. It was necessary to co-vary out the influence of highest degree completed because of the unbalanced representation of practitioners and counselor educators in some specializations. Some of the specializations were made up entirely of master's students. As reported above, students consistently score lower than more experienced counselors. The finding of no significant differences supports the validity of the use of this instrument with counselors in different specializations and settings. CCQ Integration scores did differ across specializations, though the effect size was very small. Because of the small number of respondents in some specializations, it is unclear if this effect reflects group differences.

An additional source of validity comes from comparing the complexity of conceptualizations within each respondent. On the CCQ, counselors describe two clients, one with whom they feel effective and one with whom they feel less effective. From the literature review, the ability to conceptualize a client complexly should increase the counselor's effectiveness (e.g., Borders, 1989). Therefore, Research Question 3 hypothesized that, when scored separately, the conceptualization of the client with whom

the counselor felt effective would be more complex than the client with whom the counselor felt less effective. Using a paired samples *t*-test, a significant difference between the two conceptualizations was noted. The mean CCQ differentiation scores were significantly higher for the client with higher perceived effectiveness, suggesting that counselors used a higher number of constructs to describe clients with whom they felt effective than they used to describe clients with whom they felt less effective. CCQ Integration scores were also higher for the client with whom the respondent felt effective, but the *t*-test only approached significance ($t = 1.94$, $sig = .06$).

Interpretation of these results requires some considerations. Note that the counselors chose the client with whom they felt effective and the client with whom they felt less effective. Their choices were not necessarily based on objective evidence of effectiveness or the clients' perceptions of effectiveness. In addition, counselors-in-training had worked with fewer clients than practicing counselors and therefore had a much smaller pool of clients from which to choose. Finally, a *t*-test reveals differences between two groups but does not suggest causation. That is, it is unclear how the lower complexity of conceptualizations is related to perceived or actual effectiveness.

Finally, one finding provides evidence of the discriminant validity of the CCQ. In this study, the weak, positive correlation ($r = .166$, $sig = .08$) of SCT score and CCQ differentiation scores was not significant. The weak, positive correlation of SCT scores and CCQ integration ($r = .22$, $sig = .02$) was significant. These correlations suggest that general complexity and client-specific complexity are related, but only somewhat. Given these results, it would be inappropriate to use a general measure of complexity as an

index of complexity of cognitions about clients. In Welfare and Borders (2006), the CCQ and a measure of differentiation in conceptualizations of peers had a moderate, positive correlation. These two findings suggest that the CCQ captures distinct information about counselor cognitive complexity.

In sum, this study provides additional evidence of reliability and validity for the use of the CCQ as a measure of the complexity of counselors' cognitions about clients. The adequately detailed scoring protocol includes two separate and essential components of cognitive complexity: differentiation and integration. Scores on the CCQ were consistently higher for respondents who had completed their training and for conceptualizations of clients with whom the counselor felt effective, suggesting two key expected relationships (cognitive complexity and graduate training and cognitive complexity and effectiveness) do exist. No significant differences were found across specializations, confirming the assumption that conceptualizations of all clients (e.g., shy 3rd graders, isolated widowers, and dually diagnosed adults) can be complex. A final result confirms Crockett's (1965) assertion that cognitive complexity is truly domain specific and provides evidence of discriminant validity that the CCQ does not merely tap into the respondent's general cognitive functioning. Given this psychometric support, the CCQ is appropriate for use as a measure of the complexity of cognitions about clients. The explanation of the following results is anchored in this conclusion.

Counselor Cognitive Complexity

Counselor educators and supervisors endeavor to prepare students for work as effective counselors. The centrality of cognitive processes in the performance of a

counselor necessitates a focus on cognitive development in counselor preparation. Existing theory and research have informed the curriculum of training programs, supervision practices, and competency requirements. However, many questions remain about counselor cognitive functioning and development. The following discussion reveals some interesting and relevant results.

Research Question 1

The first area of inquiry in this study involved expected differences in cognitive complexity at a general level versus a specific domain. An individual's cognitive system can be assessed in many ways. A general measure (like the SCT) provides an overall index for complexity. Though Crockett (1965) contends that cognitive complexity is specific to the domain of the stimulus, general measures often have been used to represent complexity in specific domains including counseling (e.g., Fong et al., 1997). By assessing each respondent's general complexity *and* domain specific complexity, comparisons could be made. The one-way ANOVA revealed high within-groups variance, suggesting that individuals with the same general level of complexity vary tremendously in complexity of their client conceptualizations. This distinction is important for counselor educators and supervisors to consider, as it suggests that even students who have high levels of general complexity may lack complexity in their conceptualizations about clients. Likewise, some students who have lower general complexity scores were able to create relatively advanced conceptualizations. It is impossible to decipher a definitive basal or ceiling effect of general complexity from these results, but it appears that no respondent who scored at the E4 Conformist level of

general complexity scored in the higher range of specific complexity. Perhaps the general cognitive capacities that correspond with levels E5 Self-Aware and above are the minimum required for complex client conceptualizations. Certainly those students at the E4 Conformist level of general cognitive complexity are the most in need of development if they are to become effective counselors. Assessments like the CCQ and SCT could help counselor educators identify students who are need individual attention to meet the developmental goals of counselor preparations programs.

Regardless of current level, all counselors-in-training are in need of cognitive development. Counselor educators and supervisors are charged with the responsibility of facilitating curricular and supervisory experiences that increase the cognitive complexity of their students. A second focus of this study was to identify important components of counselor cognitive development.

Research Question 2

The second research question explored the impact of duration of experience as a counselor on cognitive complexity. The literature on this issue is conflicting. Some studies have yielded evidence that experience does impact cognitive complexity (e.g., Ladany et al., 2001), while others have suggested it does not (e.g., Borders & Fong, 1989). By analyzing the impact of experience on both specific complexity (CCQ score) and general complexity (SCT score) via a linear regression, a potential explanation was revealed.

Experience level was a significant predictor of CCQ Differentiation scores, accounting for 20% of the variance. Experience level was also a significant predictor of

CCQ Integration score, although it accounted for only 5% of the variance in those scores. Thus, experience level seems to impact both aspects of client-specific cognitive complexity. However, the impact of experience on cognitive differentiation (i.e., the number of constructs one has available in their cognitive system) is approximately four times as strong as the impact experience has on cognitive integration (i.e., the connections between the constructs and the overall interpretation). It is unclear from these results exactly why this effect is so striking. It seems one's number of available constructs increases markedly with exposure to new clients, but perhaps exposure alone is not sufficient for increases in integrative complexity. Forty percent of the respondents in the sample were in their first year of client exposure. It may be that the initial exposure to clients results in an increase in characteristics that the counselor recognizes, but improving one's ability to integrate the pieces of information about the client requires time and processing in supervision. The cross-sectional nature of this study does not allow for change in complexity over time to be charted or definitive conclusions to be drawn, but the informal implications for counselor educators and supervisors are clear. The two components of cognitive complexity, differentiation and integration, appear to respond differently to experience as a counselor.

The second hypothesis in this research question predicted that duration of counseling experience would not be a significant factor in general cognitive complexity (SCT score). The results were contrary to expectation. Counseling experience was found to be a significant predictor of SCT score. However, the amount of the variance in SCT

scores that could be explained by counseling experience was only 3%. Such a small percentage is not considered to be of practical significance.

From these three findings, it seems that duration of counseling experience has a much stronger impact on the number of constructs counselors have with which to characterize clients than it does on cognitive integration or overall cognitive complexity. The impact of counseling experience on integrative complexity and overall complexity, though statistically significant, lacked practical significance. There are two important considerations in interpreting these results. First, cognitive differentiation is much easier to measure precisely in client conceptualization than is cognitive integration. Though the CCQ Integration measure seems to be adequate, it is possible that the impact of experience on integration appears lower because of limitations in the measure. A second consideration is that perhaps *supervised* counseling experience would have a stronger impact than *unsupervised* experience on cognitive development. If, as suspected, gains in integrative complexity require guided intentional, supervised experience would emerge as the more powerful predictor. In this study no distinction was made between supervised and unsupervised counseling experience. To gain a more complete understanding of the factors in counselor cognitive development, more specific information about counseling experience and experience in supervision are required.

Research Question 4

A final focus of this study was to identify additional predictors of counselor cognitive complexity. As outlined in the literature review, many factors are believed to be important in counselor cognitive development. The development of the CCQ allows

for an analysis of the impact of these factors on the complexity of cognitions about clients. In this study, separate linear regressions revealed that the variables age, duration of counseling experience, highest counseling degree completed, duration of experience as a supervisor, duration of experience as a counselor educator, and number of sessions with the specified clients were all significant predictors of CCQ differentiation scores. The variables SCT score, duration of counseling experience, highest counseling degree completed, duration of experience as a counselor, duration of experience as a counselor educator, and number of sessions with the clients were each significant predictors of CCQ Integration scores. However, in a regression analysis, parsimony (explain the most variance with the fewest number of predictors) is valued. Using a stepwise regression, then, parsimonious models for CCQ Differentiation and CCQ Integration were identified.

Duration of experience as a counseling supervisor and highest counseling degree completed were the two predictors in the model for CCQ Differentiation. These two factors explained almost one third of the variance in the number of constructs counselors had to characterize clients.

In this sample, 86% of the participants had not provided any clinical supervision (n = 98) while 14% (n = 15) had supervisory experience. The inclusion of this variable in the model suggests a significant predictive relationship between the experience of providing supervision and cognitive differentiation in client conceptualizations. Though this analysis does not prove a causal relationship, it does have important implications. The duration of experience providing supervision explained more variance in CCQ differentiation scores than did duration of experience as a counselor, general cognitive

complexity scores, or duration of experience teaching counseling-related coursework. This result implies an important relationship between the cognitive development that occurs in supervisors and the supervisor's ability to conceptualize clients. Anecdotally, providing clinical supervision is certainly a learning experience about clinical work. This finding is evidence of a direct link and impetus for further study. By assessing change in the complexity of supervisor conceptualizations of clients, the impact of supervision experience could be charted.

The second significant predictor in the stepwise regression model for cognitive differentiation was highest counseling degree completed (i.e., currently pursuing a master's degree, completed master's degree, completed educational specialist degree, or completed doctoral degree). In a stepwise regression, parsimony requires that the best predictors be used in the model. This single variable "highest counseling degree completed" likely reflects other group level differences. Recall that 77 of the respondents were currently enrolled in master's programs and 36 had completed a minimum of a master's degree (Table 6). Also recall, for example, that respondents who had not completed a master's degree scored lower on average on the SCT and had fewer years of counseling experience (Table 10). It is likely that the single variable "highest counseling degree completed" actually subsumes several of the other variables that could have included in the model. Since the analysis chooses the *best* predictor variables rather than *all* of the significant predictor variables, only the two variables that explain the most variance are included.

Per the stepwise regression analysis duration of experience as a supervisor and highest counseling degree completed each explained unique variance in CCQ differentiation. The respondents who had supervisory experience were at all three post-master's degree levels and not all of the respondents with higher degrees had supervisory experience. Including both predictor variables explains more variance than either could alone.

Interestingly, CCQ Integration was best explained by a slightly different combination of variables. Duration of experience as a counseling supervisor, duration of experience as a counselor, and highest counseling degree completed were the predictor variables in the most parsimonious model for CCQ Integration. These three predictors explained 26% of the variance in integrative complexity.

Again, intuitively it is understandable that experience as a counseling supervisor would impact integrative complexity. As previously explained, both aspects of cognitive complexity are important for counselors. Counselors must be able to identify client characteristics (differentiation), but also integrate the characteristics to form an accurate understanding of the client's needs. Clinical supervisors frequently help supervisees integrate client characteristics in an inclusive case conceptualization. Perhaps experience as a supervisor stimulates ongoing development of integrative skills in the supervisor.

Counseling experience also was predictive of integrative complexity. Respondents in this sample had 0 to 27 years of experience as a counselor and, as already stated in Research Question 2, counseling experience was a factor in cognitive complexity. The fact that it was included in this parsimonious stepwise regression

confirms that counseling experience explains more of the variance in CCQ integration scores, even after duration of supervisory experience is accounted. It seems both experiences, counseling and supervisory, impact integrative complexity. Since some counselors rarely or never provide supervision, this finding is encouraging. Cognitive development seems to be stimulated by both counseling experience and supervisory experience. What requires further investigation is if supervised counseling experience impacts integrative complexity more than unsupervised counseling experience.

The third important predictor in the parsimonious model of integrative complexity was highest counseling degree completed. Respondents in this sample were either enrolled in a counseling master's degree program, had completed a master's degree, completed an educational specialist degree, or completed a doctoral degree in counseling. Some respondents who were enrolled in advanced coursework (e.g., a doctoral program) had relatively few years of experience as a counselor or supervisor. A portion of the variance, in addition to that explained by supervisory and counseling experience, in CCQ Integration scores could be explained by this variable. It seems that receiving advanced curricular experiences can impact cognitive complexity as well.

In sum, duration of experience as a supervisor, duration of experience as a counselor, and highest counseling degree completed predicted over one quarter of the variance in CCQ Integration scores. These results do not suggest that factors identified in the literature, such as general cognitive complexity and age, are not important in counselor cognitive development. Rather, the results suggest that, in these models,

general cognitive complexity and age did not explain enough variance above the core factors (identified above) to justify complicating the model.

Limitations of the Study

The results of the study provide additional information about counselor cognitive development. However, because the results are based on a convenience sample, conclusions must be interpreted with caution. The findings represent effects in the sample used in the study, and are cautiously generalizable to counselors and counselors-in-training as a whole.

Additionally, there are a few important considerations for the measure itself. It is important to consider potential confounding variables in CCQ scores. Completing the CCQ requires focused effort, attention, and concentration. Anything but the participant's best effort would result in an underestimated score for cognitive complexity. All respondents in this study participated willingly with no external reward. It is believed that by choosing to participate they showed willingness to put forth the effort required, but this is an assumption. Also, the CCQ may be inappropriate for use with respondents with limited fluency in English. The nature of the prompts and response format require the ability of the respondents to understand and express their thoughts in written English. In this sample, all respondents were fluent in English. In line with the findings of Welfare and Borders (2006), the CCQ is not recommended for use with non-English speaking populations. Finally, the analyses run in this study reveal differences in the characteristics of differentiation and integration scores. Differentiation and integration are two separate and unique cognitive functions, so it is not entirely surprising that they

related differently to other variables. However, it must also be considered that the measure of integration is not as robust as the measure for differentiation. Integration is a more complicated cognitive process and is more difficult to break down into measurable units.

One methodological limitation is that the distinction was not made between supervised counseling experience and unsupervised counseling experience. All students in CACREP programs receive individual and group supervision as part of their degree program. Many counselors continue supervision after graduation in partial fulfillment of licensure or certification requirements. However, for some practicing counselors (e.g., school counselors, student affairs counselors) the benefits of licensure are less evident. For these counselors continuing supervision may be appealing but unrealistic. In this sample, 36 respondents had completed a master's degree and were either practicing counselors or doctoral students. Since the distinction was not made on the information form, there is no way to know if the years of counseling experience reported were supervised or unsupervised. There is evidence that this distinction is important (Hill et al., 1981) and future studies should gather information on both.

Implications for Counseling

Both the psychometric support for the measure and the findings of the research questions have implications for counselors, counselor educators, and supervisors.

The psychometric support described above is an important addition to the Welfare and Borders (2006) study reporting development and validation of the CCQ. With these sources of support, it is clear that the CCQ can be informative in empirical research.

Having an appropriate measure of counselor cognitive complexity is necessary to explore counselor cognitive development. Ultimately, counselor educators and supervisors need evidence-based techniques that facilitate their students' cognitive growth. The Counselor Cognitions Questionnaire is a valuable tool for the future study of counselor cognitive development.

Counseling experience emerged, not surprisingly, as an important factor in counselor cognitive development, but it had a more powerful relationship with cognitive differentiation than integration. Counselor educators and supervisors must consider if curricular and supervisory experiences emphasize cognitive differentiation and neglect the development of integrative complexity. What curricular experiences are designed to facilitate growth in cognitive differentiation and integration? What techniques do supervisors use in supervision to improve the supervisee's ability to integrate characteristics and develop a thorough understanding of the client's needs? Metaphors (e.g., Young & Borders, 1998), the thinking aloud approach (Borders, 1989), Interpersonal Process Recall (e.g., Griffith & Frieden, 2000) are believed to impact supervisee cognitions, but outcome studies, if available, are inconclusive. Do we have techniques that help the supervisee realize the importance of the counselor-client relationship or other dimensions of conceptualization? These are important considerations for those who are charged with facilitating cognitive growth and preparing counselors with advanced cognitive complexity.

It may be that differentiation and integration seem to be impacted differently by experience because the impact of experience on integration requires longer to be fully

realized. Anecdotally, master's students who return from the semester break in the middle of their year long internship report that the time away was instrumental in their development of the ability to see the big picture with clients. Perhaps counseling experience does impact integrative complexity as much as it impacts differentiation, but before the gains emerge the student must take time to process the experiences. Reflectivity has been noted as important in counselor cognitive development (Neufeldt, Karno, & Nelson, 1996). A longitudinal study would provide empirical information about these assumed relationships.

Differentiation is clearly a domain specific cognitive capacity, but perhaps the cognitive process of integration is more transferable to other domains. For example, exposure to a new client issue likely will increase the constructs that that counselor has for characterizing clients. This effect seems straight-forward. In contrast, the realization that the counselor-client relationship is an important consideration in case conceptualization is an advance in integrative complexity that the counselor could apply to other client conceptualizations. Or, consider a counselor who first realizes that the client's anger might actually mask fear. The counselor may be able to apply the general rule (i.e., consider that thoughts, emotions, and behaviors are not as simple as they seem) to other clients. The challenge for counselor educators and supervisors then, is to help students see these larger applications.

It appears, from the results of the multiple regression, that the experience of providing supervision is strongly related to both the differentiation and integration aspects of complexity. The impact of supervisory experience on the complexity of client

conceptualizations was not the original focus of the study, but the finding has clear implications for counselors. Providing supervision does facilitate ongoing development of the supervisors' client conceptualization skills. This evidence refutes the criticism sometimes posed to counselor educators that their competency as a supervisor is limited since many are no longer actively practicing counselors. What is it about providing supervision that is so related to cognitive complexity? Is supervisory experience more powerful in facilitating cognitive development than counseling experience alone? These questions should be explored in future studies.

Suggestions for Future Research

Though these results are valuable, many questions remain unanswered. The factors included in the models explain only one quarter to one third of the variance in CCQ differentiation and integration. Future research is needed to identify the other factors relevant to counselor cognitive complexity. A longitudinal study with a representative sample would provide the data necessary for a comprehensive model of counselor cognitive development. The distinction between supervised and unsupervised counseling experience must be made in gathering respondent information. Clearly supervisory experience is also an important consideration in career-long cognitive development. The relationship of supervisory experience and client conceptualization complexity is speculative at this point, but could be much better understood with future analysis. Though the outcomes of a longitudinal study would require years of data collection, the value of the information would be tremendous.

In addition, the effectiveness of particular curricular experiences and supervisory techniques can now be assessed using the CCQ as an outcome measure. The results of such studies would provide counselor educators and supervisors with evidence-based practices in counselor education and supervision.

Client outcomes are the ultimate variable of interest. The ability of counselors at varying levels of complexity to be effective with clients is an important question. No existing research of counselor cognitions includes client feedback. Research into the impact of counselor cognitive complexity on client outcomes is crucial.

In conclusion, as in many studies, the results posed as many new questions as they answered. With the CCQ as a tool for measuring domain specific complexity, there are new options for answering important questions in counselor cognitive development.

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